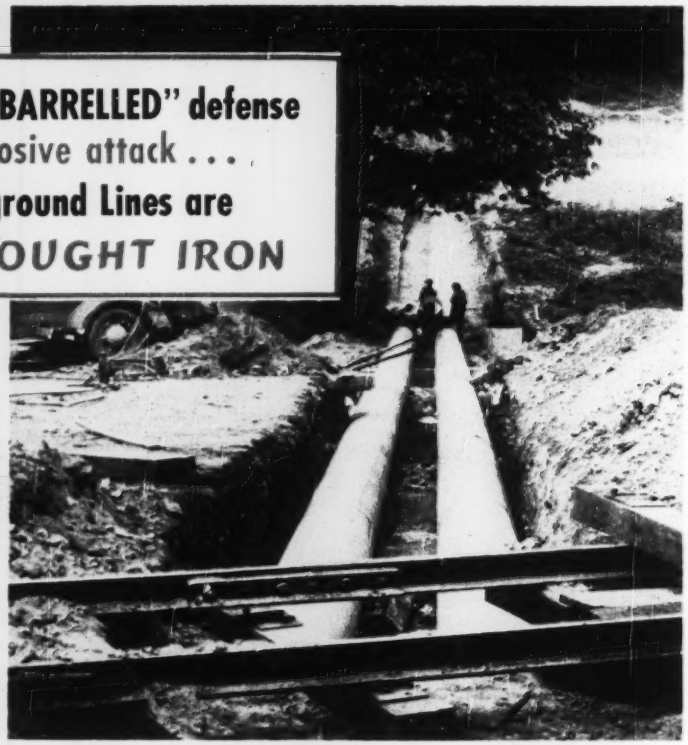
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

Here's "DOUBLE-BARRELLED" defense against corrosive attack . . . Twin Underground Lines are BYERS WROUGHT IRON



There's a *double* corrosive threat to underground water lines . . . inside attack from water; outside attack from soil . . . so Elliott Company, Jeannette, Pa., set up a "double-barrelled" defense against these hazards by selecting wrought iron for their twin underground piping. Running from the cooling tower to the condensers, these 1200 ft. lines were fabricated from ¼" Byers Wrought Iron plate into 20" pipe by the Reliance Steel Products Company.

Companies in all sections of the country are using this same time-tested method to forestall early and costly repairs and replacements. They realize that successful, economical operation depends heavily on the proper selection of materials. Byers Wrought Iron has demonstrated its exceptional qualities in practically every corrosive service, and provides a sound means of getting maximum life from every underground installation, with minimum maintenance.

There is plenty of engineering precedent to support the choice of wrought iron for this demanding service. For one example: . . . a 200 ft. water main, removed after 54 years of service, was reported free of holes and thin spots. It was cleaned and placed in stock for making repairs and replacements. The pipe used to replace the 54 year old material was wrought iron that had seen 35 years of duty before it was removed and cleaned.

For another . . . in a mid-west community, wrought iron lines were reported as still serving after 43 years. Ordinary material had lasted only 14 years in this area.

Examples could be multiplied almost indefinitely . . . but these will suggest the splendid performance of wrought iron.

If you have any underground lines in prospect, you'll find some helpful information in our bulletin WROUGHT IRON FOR UNDERGROUND SERVICES. We will be glad to send you a copy on request.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.

WHY WROUGHT IRON LASTS

This notch-fracture test specimen illustrates the unusual fibrous structure of wrought iron—which is responsible for the unusual corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

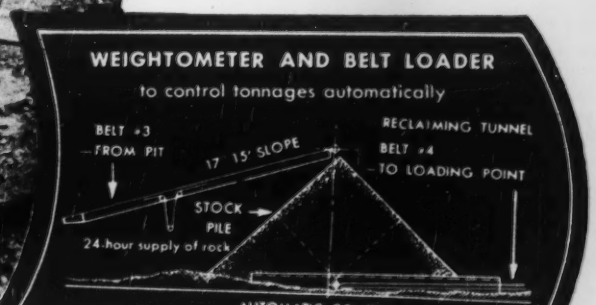
TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

These belts outwork 6 trains!

IN a Virginia quarry, a system of four Goodyear conveyor belts—one of which you see here—carries limestone that six donkey-engined trains used to carry laboriously from quarry to plant. The conveyor system, designed by the G.T.M.—Goodyear Technical Man—is ¾-mile long, instead of the six miles of track the railway system used. In addition to short-line haulage, the belts have larger ton-per-hour capacity, making stock piling at the processing end easier. Constant flow ends spotty loading. Haulage costs are far lower, too.

You can consult the G.T.M. on any materials-handling problem by phoning your nearest Goodyear Industrial Rubber Products Distributor, or writing Goodyear, Akron 16, Ohio.



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BERGER
solves another Engineering problem

Fast accurate measurement on long vertical sights

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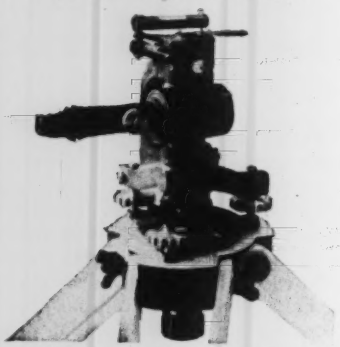
without altering position of instrument



- **Align elevator shafts accurately, speedily . . .**
- **Test movement of top of tall buildings or bridges during high winds . . .**
- **Align suspension bridges; set piers, canal locks . . .**
- **Transfer terminal mark of baseline to end-mark of tape and vice versa . . .**
- **Take necessary sights in mine shafts . . .**
- **Transfer ground control points to top of high street towers or bridge structures . . .**
- **Set turbines and generators . . .**

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 145 NOVEMBER 23, 1950 No. 21

WALDO G. BOWMAN
Editor

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Here is but a part of the list of advantages that Northwest has for you — a list of advantages that puts Northwest far in the lead from the stand point of low upkeep cost, ease of maintenance and high output.

They deliver the satisfaction that makes the Northwest the best for the heart of the job. Plan now to have one. Let us tell you more about why one out of every three Northwests sold is a repeat order.

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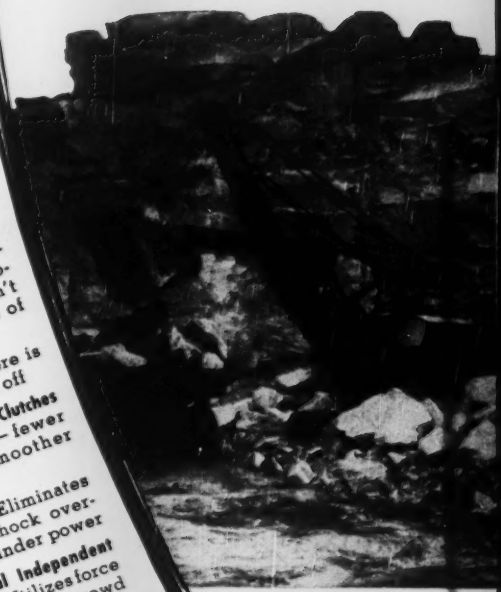

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only the best for the heart of the job

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Operating AMERICAN LOCOMOTIVE CRANES *is a Soft Touch*

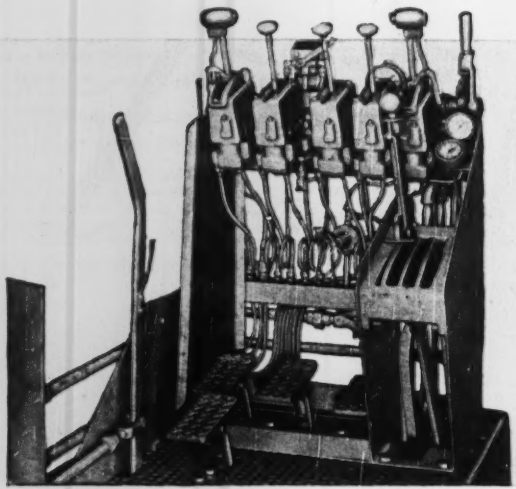
through W·A·B Enginaired Devices

It's sad but true that the harder a crane *operator* has to work—the more his *equipment* will loaf!

American Hoist and Derrick Company was a pioneer in recognizing that ease of operation pays off in expanded performance—and doing something definite about it!

W·A·B engin*aired* controls are available on a variety of American Hoist equipment. Everything is centered within easy reach of the operator. A light touch initiates the desired action—and the magic of air converts it into any required operating force.

When you are thinking of buying an American Unit, be sure to ask about W·A·B Pneumatic Controls. They take less out of the operator, and get more out of the equipment.



Westinghouse Air Brake Company

Industrial Products Division WILMERDING, PA.

Less Infiltration

TRANSITE* SEWER PIPE offers two basic safeguards that minimize infiltration in sewer lines: *tighter* joints and *fewer* joints.

Transite's special sleeve-type joints make up tight and stay tight in service.
Its long 13-foot lengths reduce the number of joints in the system.

These safeguards cut down the volume usually allowed for infiltration, reducing sewage load on the treatment plant and conserving plant capacity for future needs. Where new treatment facilities are planned, this reduced infiltration may permit consideration of a smaller plant with resulting economies.

Other Transite Economies—Transite's long lengths help maintain uniform grades; fewer joints reduce turbulence in the line. These advantages, added to Transite's unusually smooth interior, mean better flow qualities (Kutter's n=.010). This often permits designing the system with flatter grades and shallower trenches. Or, as an alternate economy, pipe of smaller diameter may be specified.

Transite Sewer Pipe is made of asbestos, cement and silica by a special manufacturing process that employs steam curing to develop greater corrosion resistance and strength. It is available in four strength classes in sizes to 36", permitting selection of the pipe best suited to trench conditions, and frequently eliminating the need for concrete cradles.

For further details, write Johns-Manville, Box 290, New York 16, N. Y.

JM

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There's no material handling, stockpiling or excavation job that can't be handled by one of BAY CITY'S *Big Three.* If you need power combined with speed and mobility, there's the *CraneMobile* with road speeds up to 30 mph and lifting capacities up to 25 tons. If it's one man operation you want, there's the flexible self-propelled *CraneWagon* to do your lifting and material handling. And, if your job calls for hoe, dragline, shovel, clamshell or crane there's the convertible, crawler mounted BAY CITY with capacities up to 1¼ yd. and 25 ton rating. Why not check with your nearest BAY CITY dealer and get to know the *Big Three* better.

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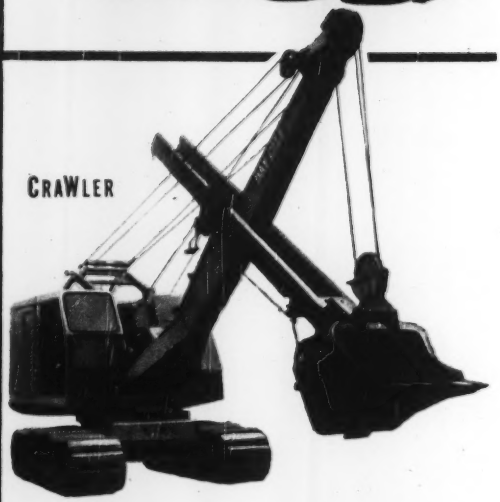


CRAWLER

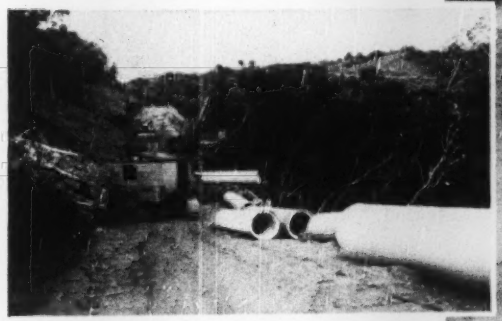
BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

WHERE PIPE LINES ARE CONCERNED...

It's never a lucky break

BELOW—Installing the 30" Lock Joint supply line for Ciudad Trujillo in the Dominican Republic. This line, undamaged by shocks which destroyed many structures in the vicinity, gave unimpaired service throughout the severe earthquake of 1946.



RIGHT—Damage attending the rupture of a large water main in a crowded community.

ONE SLIGHT FLAW IN A PIPE may develop the proportions of a major catastrophe when an important water line ruptures in a crowded area. Utilities can be impaired, property flooded, traffic stalled, business lost, life endangered. A bad break in more ways than one, but a break which could be avoided by using Lock Joint Pressure Pipe.

Lock Joint's water-tight expansion joints built into every section of pipe provide unrestrained flexibility under back loads to accommodate not only normal ground settlement but traffic vibrations and variations in temperature. The high factor of safety assured by its time-tested design of reinforcement provides for every pipe an abundant reserve against water hammer and pressure surges. Experience shows conclusively that Lock Joint Pressure Pipe does not fail.

When planning your next water supply main—specify Lock Joint Concrete Pressure Pipe—the pipe with a proven record of safety.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters from 16" up as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

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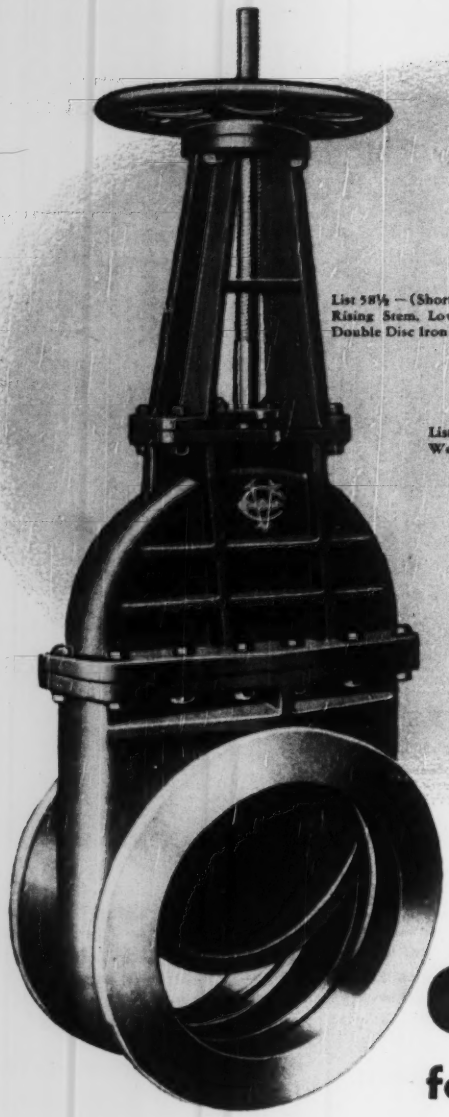
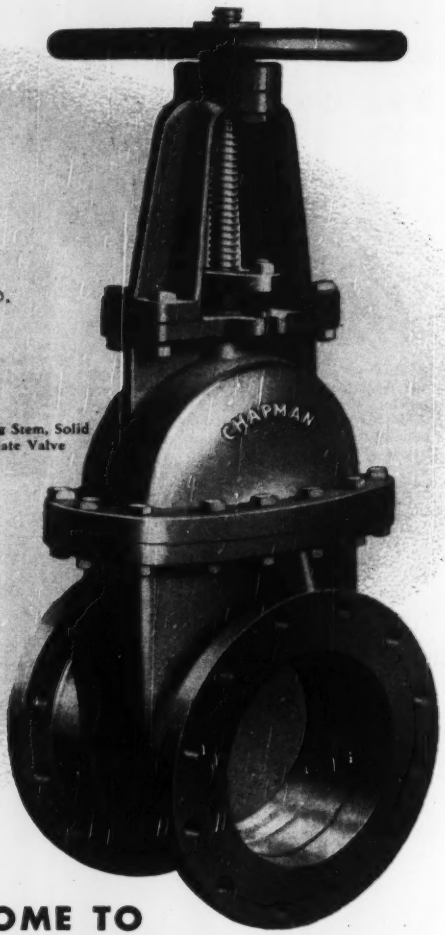


List 58½ — (Short face to face), Rising Stem, Low Pressure, Double Disc Iron Gate Valve



List 25 — Rising Stem, Solid Wedge, Iron Gate Valve

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for Standard Gate Valves

. . . For all purposes . . . For all pressures . . . In all sizes

Be sure to check Chapman first whenever you need standard gate and check valves. Here you'll find iron valves in a complete range of sizes—both solid wedge and double disc types—for a complete range of working pressures from 25 to 800 lbs. for steam, water, oil or gas service. Operation may be by hand wheel, with or without bevel or spur gearing, floor stand, electric motor, hydraulic or pneumatic cylinder.

If, however, you need bronze valves — we have them. Just as we have a complete line of steel valves. And valves of many other types such as tilting disc, iron and steel check valves. Whenever special valves for unusual service are required, Chapman engineers will be glad to help you develop them.

The Chapman Valve Manufacturing Company

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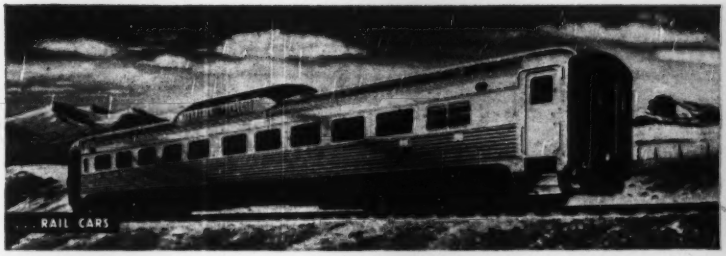
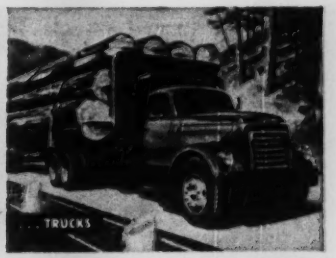
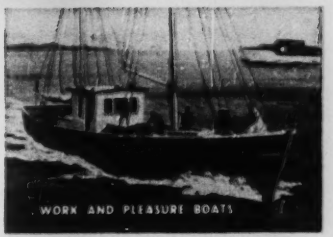




This is the Diesel

that speeds the big jobs



HERE IT IS—the newest member of the General Motors Diesel family—the brawny 6-110 engine that develops 275 horsepower.

It is 50% more powerful than the famous 6-cylinder GM "71" engine that powers so many trucks, buses, boats, construction equipment and other mobile, portable and stationary units.

This rugged new Diesel doesn't care what's tied to its tail. It has power to spare to keep big jobs humming, yet is so compact it doesn't hog space.

For example, each new Budd RDC rail car is driven by a pair of 6-110 Diesels with GM torque converter transmissions. The compactness of these power plants permits mounting them under the floor so that no revenue space is lost. These rail cars accelerate from standstill to 44 miles per hour in just one minute and have a top speed of 83 mph with a full load.

Like all other GM Diesel engines the 6-110 is two-cycle—delivers power on every piston downstroke. This advanced design cuts down Diesel size without sacrificing ruggedness; it insures fuel economy, lower maintenance costs, exceptional dependability and long life.

The GM 6-110 engine provides Diesel power at its best for heavy-duty jobs—not only for rail cars but in the largest mountain-type trucks, huge rock crushers, deep-sea fishing and pleasure boats, big pumps and compressors, mining and oil field equipment. *It is an exceptionally compact Diesel for its horsepower—an engine that gives remarkably fine performance in minimum space.*

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES . . . Up TO 275 H. P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS . . . Up TO 800 H. P.

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Hear HENRY J. TAYLOR on the air every Monday evening over the ABC Network, coast to coast.

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DIESEL POWER

Only GM Diesels provide all these advantages

Compact size—less weight per horsepower . Two-cycle smoothness, power on every downstroke . Quick starting, on its own fuel . Unit injectors—no high-pressure fuel lines . Rapid acceleration . Cleaner burning . Better high-altitude performance . Easy accessibility.

"Your Key to Power Economy"

Gulf Quality Lubricants and Fuels

Smooth the way to greater yardage on New England road project

Bayer & Mingolla, Inc., Worcester, Mass., has the contract for highway construction work in Leominster, Mass. Amount, $1,050,129. With the help of Gulf Products and Fine Service, the work is considerably ahead of schedule.

ANOTHER big earth-moving project where Gulf quality lubricants and fuels work as a team to keep the job rolling smoothly.

Gulf lubricants provide better protection for equipment that's pushed to the limit to beat contract schedules—and Gulf fuels insure full power output. Result: an extra margin of performance, fewer delays, lower maintenance costs, bigger profits on every job!

Write, wire, or phone your nearest Gulf office today and arrange to use Gulf quality petroleum products on your next job. They are quickly available to you through 1200 warehouses located in thirty states from Maine to New Mexico.

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NEWS BRIEFS

Canadian pipeline nearly ready—About Dec. 1 the first oil to be carried by the Canadian pipe line from Edmonton, Alberta, to Superior, Wis., is expected to arrive at the latter city, where it is said a refinery may be built. In the meantime, a couple of dozen huge storage tanks will be erected at Superior and in the spring oil will be delivered by tankers through Lakes Superior and Huron to Sarnia, Ont.

Dam for the Marines—The Navy Department expects to begin core drilling work next month and plans to start construction by the first of the year on a Santa Margarita River Dam near Fallbrook in San Diego County, Calif. Preliminary estimates place at $22,000,000 the cost of the project, which will serve the big Marine Corps Base at Camp Pendleton.

Best annual report—The annual report of Merritt-Chapman & Scott Corp., New York, was given first place among those submitted by the construction industry in the survey of annual reports made by "The Financial World". Second and third places were won by the annual reports of Morrison-Knudsen Co. and the Lane-Wells Co., respectively.

Cheaper than dirt—In a recent speech Benjamin F. Fairless, president of United States Steel, said, "The average price of all the finished steel sold by United States Steel this year has been just under a nickel a pound, and some finished products now sell at less than 3½ cents. What else in the world can you buy today for 3½ cents a pound? Eggs, butter and meat? No! They cost from twenty to thirty times as much as steel. . . . If you live among the cliff dwellers of New York City and want a little potting soil to put around your geranium plants, you can buy it at your neighboring seed store for seven cents a pound—and that's twice as much as some finished steels would cost you. So that steel is literally cheaper than dirt!"

A burning question—Bids are being called for alterations to Los Angeles' much-disputed Lacy St. incinerator. The $1,000,000 plant was closed last March after it failed to operate properly. It was the first—and so far the last—city incinerator financed by a bond issue. Citizens have consistently protested every site proposed for additional incinerators. Repairs on the

Erect your Structural Steel—

with a man—
a maul—
and a wrench!

Dardelet "Rivet Bolts" make it possible for you to do just that. And that includes all kinds of building jobs—from the smallest to the largest. These self-locking "Rivet Bolts" are unexcelled for holding steel members together—they help you cut costs without any sacrifice to safety. Besides eliminating the need for expensive heating and driving equipment, they are stronger and faster to handle than rivets. Experience has proved their superiority.

For complete information, and a sample Dardelet "Rivet Bolt," simply fill in and return the coupon.

SEND FOR SAMPLE "RIVET BOLT"

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Without obligation on my part, please send me a sample Dardelet "Rivet Bolt" and literature on its use.

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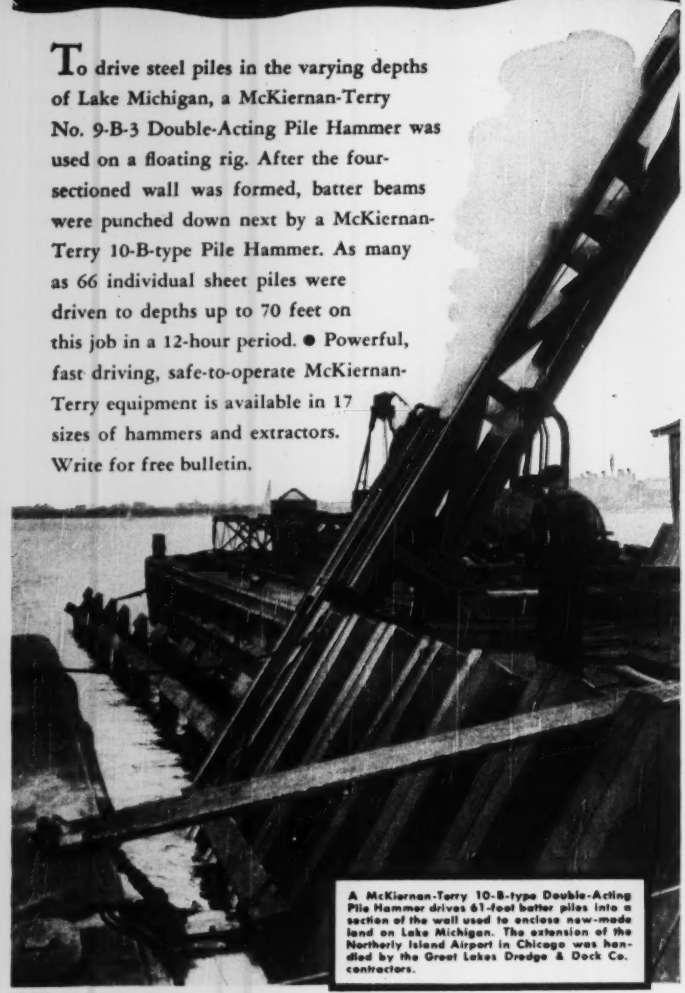
USS UNITED STATES STEEL

Making Land in a Lake

WITH McKIERNAN-TERRY PILE HAMMERS

To drive steel piles in the varying depths of Lake Michigan, a McKiernan-Terry No. 9-B-3 Double-Acting Pile Hammer was used on a floating rig. After the four-sectioned wall was formed, batter beams were punched down next by a McKiernan-Terry 10-B-type Pile Hammer. As many as 66 individual sheet piles were driven to depths up to 70 feet on this job in a 12-hour period. ● Powerful, fast driving, safe-to-operate McKiernan-Terry equipment is available in 17 sizes of hammers and extractors. Write for free bulletin.



A McKiernan-Terry 10-B-type Double-Acting Pile Hammer drives 61-foot batter piles into a section of the wall used to enclose new-made land on Lake Michigan. The extension of the Northerly Island Airport in Chicago was handled by the Great Lakes Dredge & Dock Co. contractors.

MK-289

COAL TOWERS

TRANSFER BRIDGES

HONING TO 48" I. D.

GRAB BUCKETS

McKIERNAN TERRY

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
13 Park Row, New York 7, N. Y.
Plants: Harrison, N. J. and Dover, N. J.

unit will cost about $400,000 and Frank Gillelen, member of the city's board of public works, emphasized that this time the contract will call for guaranteed successful operation.

Big check—Walter W. Johnson, county engineer at Marion, Ohio, recently cashed the largest check (in dimensions) his office has ever received. It measured 23¼x8½ in. although it amounted to only $28. It was given by the Record Duplicating Service in payment for a roll of imported, specially-treated Irish linen tracing paper. The company agreed as a favor to take the tracing paper off the hands of the county engineer, and when Johnson reminded the firm he was waiting for payment, the company obliged with the king-sized check—a photostatic copy of a regular check. The Marion County Bank honored it.

Record road building—The North Carolina Highway Commission reported Oct. 24 that during the July-September quarter it paved a record-breaking 2,282.7 miles of secondary roads. James S. Burch, the commission's statistics and planning engineer, claims that no other roadbuilding organization has paved as much in a three-month period in an area the size of North Carolina.

Thin walls—The Chrysler Corporation has broken ground for a new transmission manufacturing plant near Indianapolis that will mark the first large-scale use of a new type of glued aluminum panelling for walls. The 1,000 x 600-ft structure will have sidewalls consisting of brick 4 ft high at the bottom, window-strips 8 ft 6 in. high, and the aluminum panelling on top of that. The panels are 2 in. thick, come in sheets 4 ft wide 12 ft long, and consist of a center "sandwich section of honeycombed kraft paper impregnated with phenolic resin, to which are glued thin sheets of aluminum. Architects are Albert Kahn Associated Architects and Engineers, Detroit.

THE COVER

Among the many problems facing engineers building New Jersey's Turnpike (see page 35 of this issue for another) is that of providing accident-proof intersections in the maze of highways that make up the state's road system.

The three-level intersection here is near Woodbridge in Middlesex County. Topmost road is Woodbridge Avenue; middle one (on skew) is the Turnpike itself; lower road is Route 4.

The Turnpike eventually will stretch 118 miles, from the George Washington Bridge to the Delaware Memorial Bridge.

Painted for U. S. Pipe & Foundry Co. by Paul Laune

There's a solid satisfaction in specifying cast iron pipe. You know that your choice coincides with the judgment of leaders of your profession the world over. And when the line is backfilled, you are confident that it will serve throughout a long life at a low annual maintenance cost. This has been true of cast iron pipe for centuries; yet in the fifty-one years since our Company was founded, notable advances in manufacturing methods and controls have been made, resulting in a finer, more uniform pipe.

United States Pipe and Foundry Company, General Offices: Burlington, N. J. Plants and Sales Offices Throughout U. S. A.

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Protex Air Entraining Agent is widely used by U. S. Bureau of Reclamation, U. S. Corps of Engineers, Bureau of Public Roads. Meets the requirements of Federal Specifications SS-C-192, ASTM Spec. C-175-48T.

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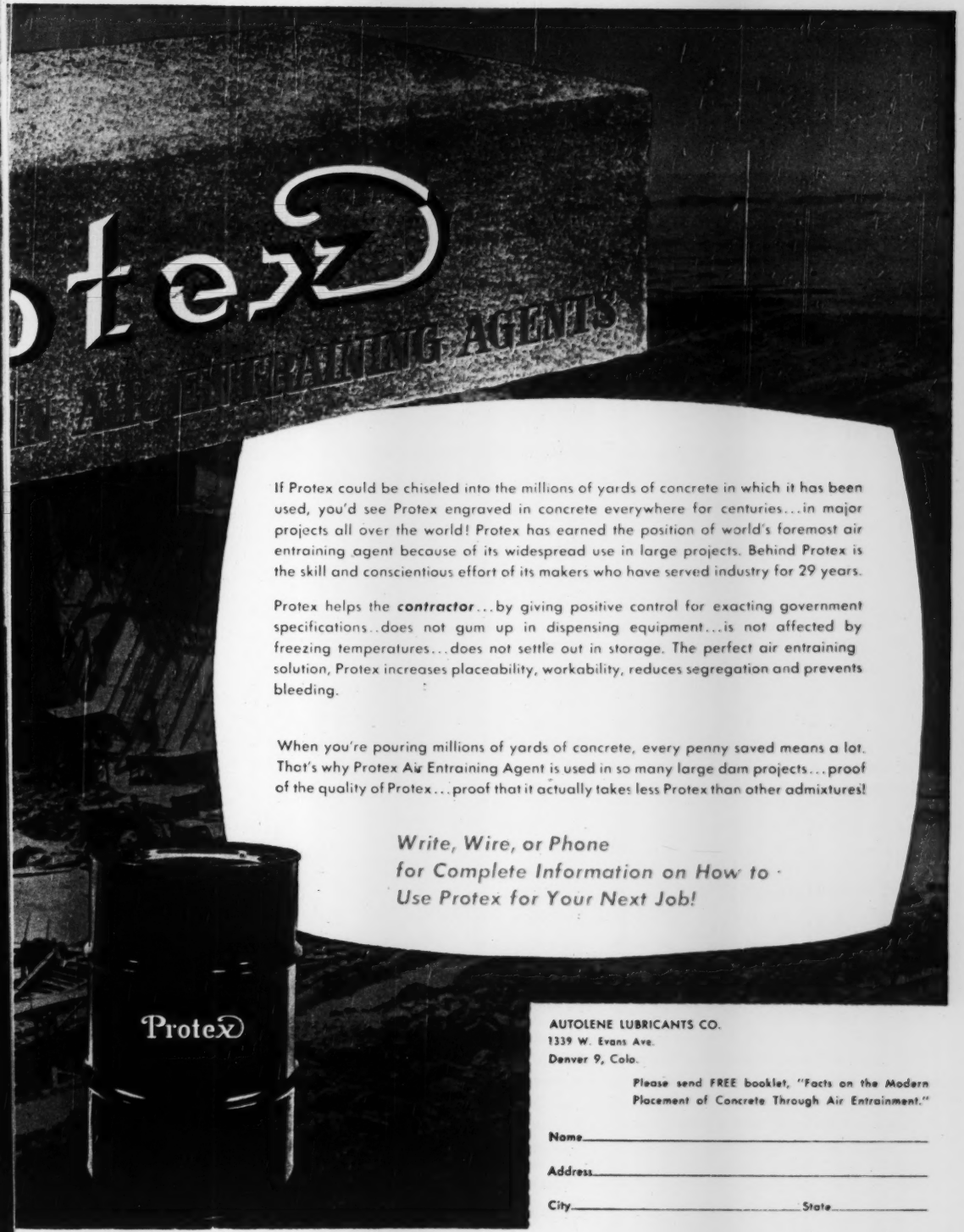

If Protex could be chiseled into the millions of yards of concrete in which it has been used, you'd see Protex engraved in concrete everywhere for centuries...in major projects all over the world! Protex has earned the position of world's foremost air entraining agent because of its widespread use in large projects. Behind Protex is the skill and conscientious effort of its makers who have served industry for 29 years.

Protex helps the ***contractor***...by giving positive control for exacting government specifications..does not gum up in dispensing equipment...is not affected by freezing temperatures...does not settle out in storage. The perfect air entraining solution, Protex increases placeability, workability, reduces segregation and prevents bleeding.

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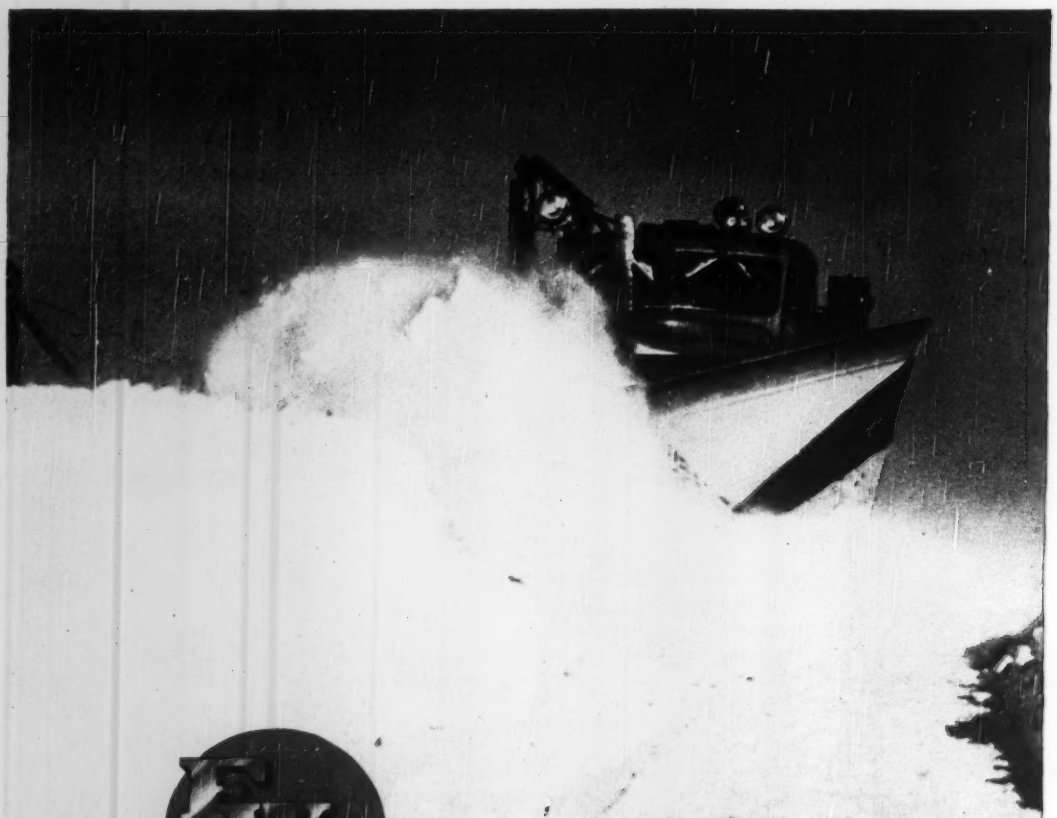

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THE CONSTRUCTION WEEK

LABRADOR IRON—Following close on the heels of contract award, railroad construction equipment now is moving down the Gulf of St. Lawrence to Seven Islands, Que., terminal of the 369-mi railroad that will bring as much as 10,000,000 tons of iron ore annually out of recently-discovered deposits near the remote Labrador-Quebec boundary. Contract is held by a group of firms headed by Cartier Const. Co. Ltd., of Montreal. Railroad work will begin immediately, with completion expected in 1954.

RIVER BASINS—Caution against public-power development has been expressed in a Missouri representation to the Arkansas-White-Red river basins Interagency Committee. Rather, works benefitting forestry and agriculture should be stressed, the Missourians say. They depreciate opinions that basin mineral deposits are rich enough to call for area industrialization and, therefore, hydroelectric-power development. Eight states are affected.

OWNER BUYS THE STEEL—Because of the tight steel situation, the New Jersey Turnpike Authority is dealing directly with major producers to procure steel for its last major construction jobs. In a notice to contractors who will bid Nov. 28 on bridge work in Newark, the Authority said an item for 13,500,000 lb of structural steel had been deleted—to be furnished by the owner.

GOOD-BEHAVIOR NOTE—Steel warehousemen thought they saw a threat of price control in W. H. Harrison's statement accompanying NPA's Regulation M-6, which guarantees warehouses a slice of steel production after priority orders have been filled. The statement said the regulation should help warehousemen "hold the line" for "normal price relationship." It turned out Harrison was merely threatening to rescind the order if warehousemen ignored regular customers' proportionate shares, letting steel get into the "grey market."

PIPELINE SQUAWK—Calling pipe shipments to Syria "a diversion of steel from home needs," U. S. oil companies are up in arms over new Commerce Department export licenses that will allow a non-U.S. company to get 183,000 tons of pipe for a new 555-mi line from Kirkuk, Iraq, to Banias, Syria. About 37,000 tons already is on its way across the water. U.S. oilmen cite critical steel conditions in their industry.

CURB ON COMMERCIAL—The Federal Reserve Board is studying a new approach to the apparently insoluble problem of controlling commercial building by credit restrictions. If the new method seems workable, FRB will talk it over with lender-builder groups and will issue a regulation. The board will make no attempt to curb industrial construction credit. Minimum controls needed in that field can best be effected by other means, the board feels. Anyway, the difficulties of credit regulation would be even greater than for commercial building.

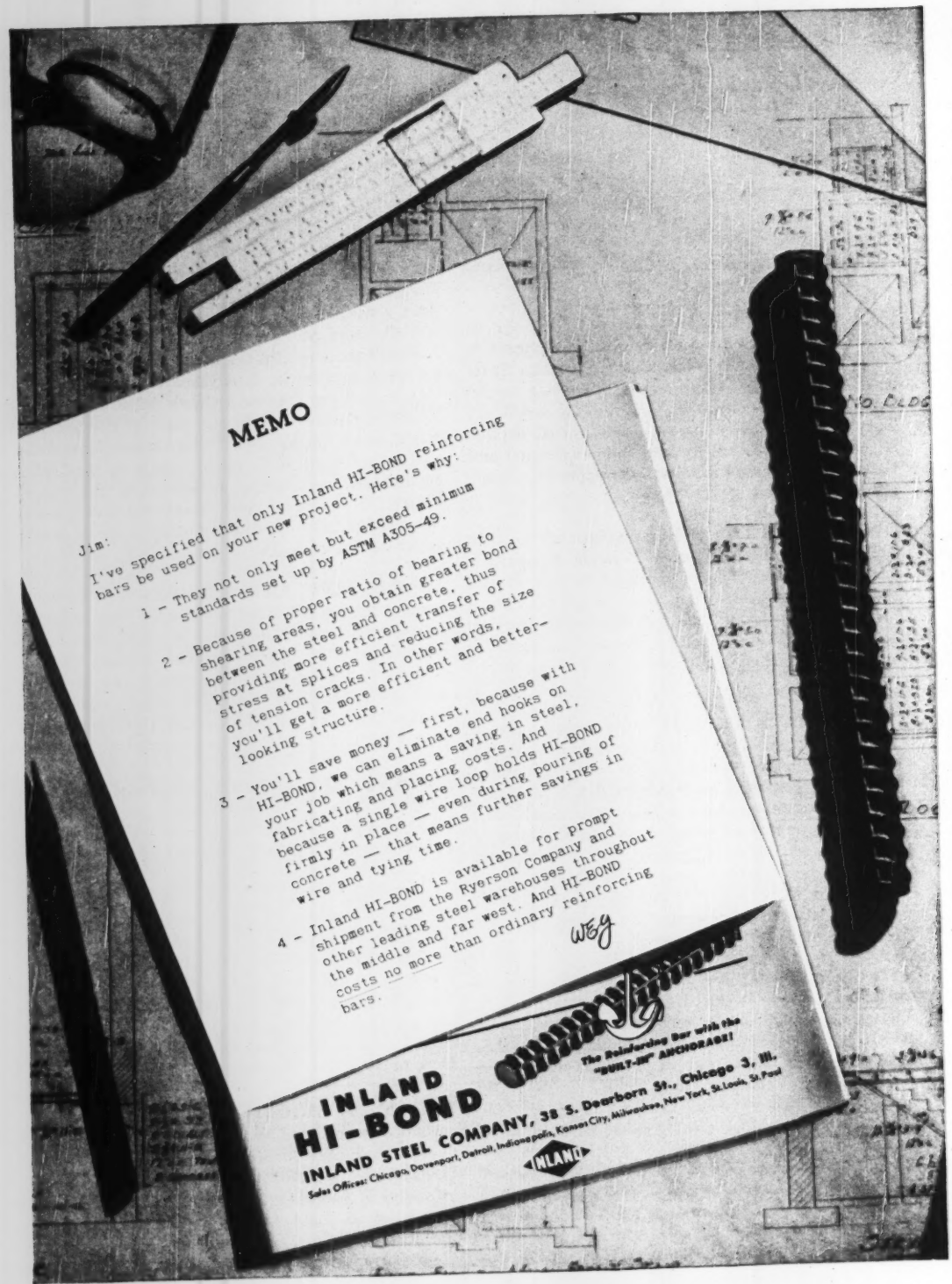
MORE FUN!—The Army Engineers stirred up a hornet's nest by assigning DO priority ratings to their VA hospital projects (ENR, Nov. 16, P. 23). The Engineers' veteran hospital jobs were in position to take first deliveries of scarce materials that the Veterans Administration needed for the hospitals it was building on its own in the same areas. It did not take VA long to pull out the Servicemen's Adjustment Act of 1944 (the famous GI bill) and point to the first paragraph, which plainly says: "The veterans administration is . . . entitled to priority equal to the highest granted any department or agency of the government . . ." There's a good chance VA will get DO. Meanwhile, Army has agreed to stop using its priority power on VA hospitals.

AGAINST LONG CRANE BOOMS—New York contractors are worried about a proposed state industrial code rule that would limit total length of crane booms and jibs to 110 ft. They claim that in many instances cranes with 125-ft booms and 40-ft jibs have been used with full safety. The regulation would eliminate the economical crane-and-bucket method of placing concrete for the city's taller reinforced-concrete structures.

WATER POLICY REPORT—The President's Water Resources Policy Commission expects to have its comprehensive report ready for release about the middle of December. Truman originally requested the report for December 1, and he will have his advance copy by that date.

TUNNEL BY-PRODUCT—Driving of the 17-mi Baltimore-Patapsco water tunnel revealed a buried asbestos deposit that—under other circumstances—would be commercially valuable. The hidden treasure was reported to the recent Washington meeting of the Geological Society of America by Prof. Norman Herz of Wesleyan University, Middletown, Conn.

EQUIPMENT PRIORITIES—In its delegations of authority for issuing DO priorities the National Production Authority allows agencies like the Atomic Energy Commission to pass the ratings down through procurement suppliers to contractors and their subcontractors on plant-construction projects. However, the priorities do not apply to construction equipment bought by contractors for their ownership.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I've specified that only Inland HI-BOND reinforcing bars be used on your new project. Here's why:
1 - They not only meet but exceed minimum standards set up by ASTM A305-49.
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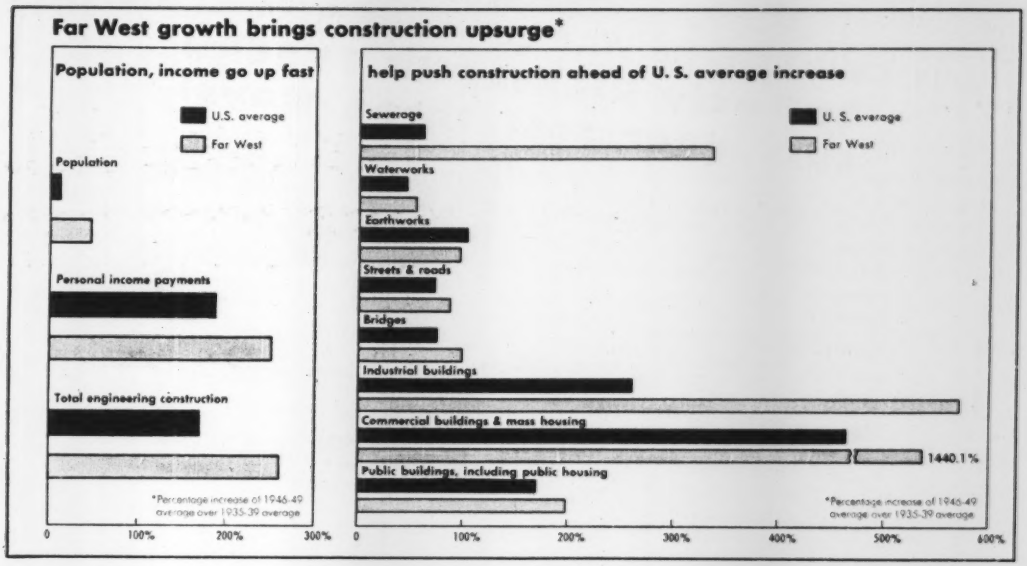
CONSTRUCTION TRENDS



This report—sixth in a series of seven analyses of regional construction trends—is based on a special economic study made by ENR.

Far Western Construction Outlook

Mobilization won't stop the Far West's construction boom. Shortages and credit controls may slow the boom—but they won't break it.

The boom is solidly rooted. It's based on a spectacular population growth—55% in ten years. And it's fed by a flow of cash 260% greater than before the war.

These basic economic facts guarantee expansion in the Western economy—they helped drive the average value of annual postwar Western construction 260% over the 1935-39 average. Mobilization will accelerate Western growth, put more money in the hands of more people. Result: long prosperity for Western builders.

The last war brought new industries to the West, along with thousands of new industrial workers—416,000 in five years, a 68% increase. The region's industry went on growing after the war, as the Western share of U. S. industrial employment increased from 10.5% in 1946 to 15.5% in 1949.

Industrial construction reflected this expansion, hit an alltime peak in 1948. Since then new contracts have slowed down—but the value of annual postwar industrial construction still averaged 571% above the 1935-39 base period, compared to a 260% increase for the U. S. as a whole. Mobilization will push this up, add a lot of priority construction.

Postwar commercial construction, including mass housing, shot up a fantastic 1,440% over the 1935-39 figure and has not yet caught up with demand. The population of the seven western states—California, Oregon, Washington, Arizona, Nevada, Idaho and Utah—increased from 11 million in 1939 to 17 million in 1949. There is still need for more housing, more stores, more schools and hospitals.

Contracts hit a new peak during the first six months of 1950. Restrictions on construction may temporarily cut private work—but continued population growth will create a new backlog of civilian demand.

Public building swung into high gear in the postwar years, and is still on the increase. Almost twice as many contracts were awarded in the first six months of 1950 as in all of 1949. And most public building is considered essential, will only be cut sharply in case of all-out war.

Street and road construction was speeded up in the Far West in the postwar period. The increase in the value of contracts awarded was 86% compared with 72% for the nation as a whole. This should continue—the value of new contracts awarded in 1950 promises to surpass the postwar record figure reached in 1949.

Sewer construction boomed in the postwar West. The increase in value of new contracts was five times the national average. But the need—caused by the great growth in urban population—has largely been met, and sewer building will probably return to more normal levels.

LONG-RANGE OUTLOOK

The Western construction outlook is excellent and it may become even better. By all the evidence, the West will continue to grow faster than the rest of the U. S.—as it has for the past ten years. The boom in construction can continue for another decade.

ENGINEERED TYING DEVICES, ANCHORAGES and ACCESSORIES for CONCRETE CONSTRUCTION

ANY COIL TYPE TIE WILL CUT YOUR FORM COSTS...

but only RICHMOND TYSCRU cuts your cost three ways!

On thin walls with large form panels, Tyscrus with Tycones are the practical and economical solution. They save materials, they save labor costs, they save time.

But that's only one of your savings when you use the genuine RICHMOND product.

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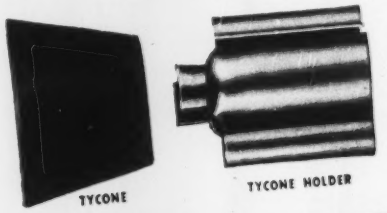
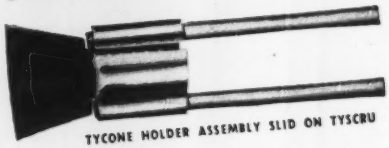
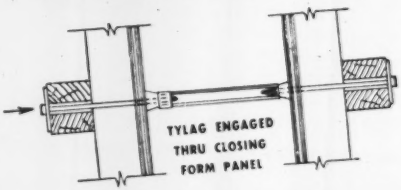
And then there's this unmatched final saving: our Job-Planning Department gladly furnishes blueprints, estimates and detailed data on your Engineering jobs—based on the creative know-how that has stood alone in this field since Richmond pioneered the first Tyscru in 1915.







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THAT'S ONLY HALF THE STORY-THE OTHER GUYS DON'T EVEN HAVE IT!
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RICHMOND KNOW-HOW—DEPENDABILITY—SERVICE—ESTIMATES & JOB PLANNING

Unplanned Housing

BUILDERS of large housing projects have been criticized by Walter H. Blucher, executive director of the American Society of Planning Officials, for giving too little thought to their effect on water supply, sewage disposal, transportation or school facilities. With some notable exceptions there is much justification for such criticism. One of the principal problems rests in the difficulty and cost of zoning and long-range planning for the loosely knit suburban areas which attract large housing developments. Mr. Blucher's organization—and regional planning groups generally—thus can help by developing means for cutting the cost of surveys and regional studies of this kind. The expected let-up in the housing boom should provide a better atmosphere for this type of forward planning for suburban developments.

No Ivory-Tower Decision

THAT ENGINEERING DECISIONS can be complicated with problems beyond the magic of slide rule computations to solve is currently being demonstrated on the 118-mile highway that the New Jersey Turnpike Authority is building. The situation stems from the fact that the authority asked its consultants to design comparable pavements of portland cement concrete and asphaltic concrete, i.e., for the same axle load—36,000 lb. Contractors were then asked to bid on both types.

The reason for this unusual action is not difficult to find. It springs from the sharp competition between the producers of portland cement and the producers of asphalt, each side doing all it can to win the distinction of having its pavement laid on so important a project as the New Jersey Turnpike. But it also creates problems—as much economic as engineering.

For example, despite the sincere efforts of the consultants and the Turnpike Authority, doubts have been raised that the two types of pavement are strictly comparable. Some observers, although not all, concede that first costs—the contractors' bids per square yard—may be comparable. But they also point out that if one type has a longer service life or costs less per year to maintain, comparison of bid prices has little significance. Then there is the added complication that the first bids favored asphaltic concrete by $2.25 per square yard whereas in more recent bids the price differential has been considerably less.

Despite the price differential, it seems reasonable to conclude that the Turnpike Authority will let contracts for both types. That would relieve it of some of the competitive pressure and can be justified by the belief on the part of the Turnpike Authority's own engineers and consultants that variations in the type of surfacing on the turnpike would be an added safety feature. Changes in the character of the surface, they hold, breaks the monotony of driving long distances over highways with few curves or grades or with no grade crossings or traffic lights.

To those engineers who hold that all engineering decisions should be made in ivory towers—where only the engineering facts need be considered—we commend a study of the current problem of the engineers of the New Jersey Turnpike Authority. Whatever type of pavement they decide to select will not get unanimous approval even among engineers.

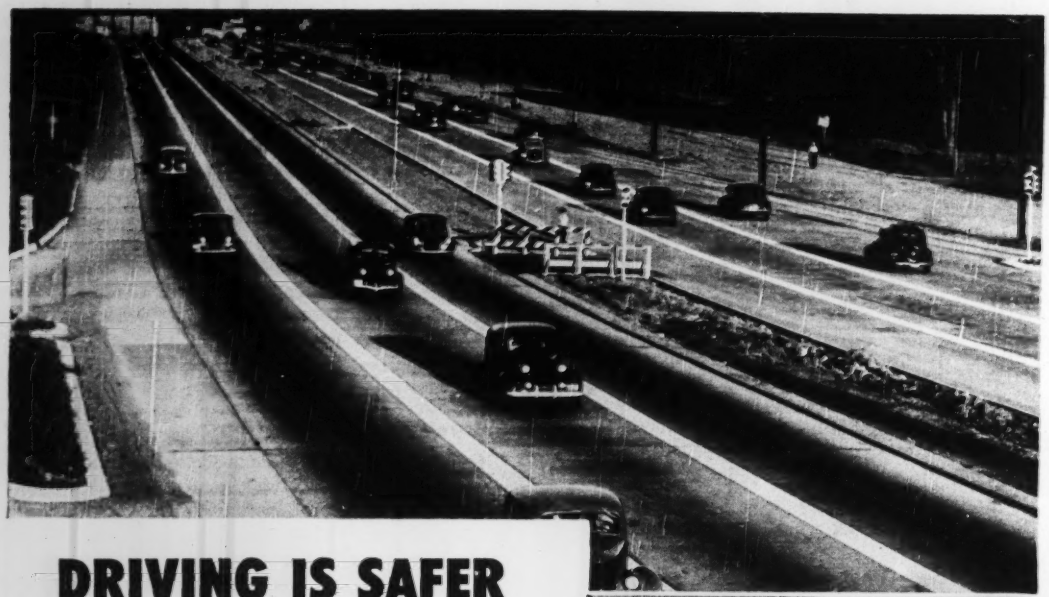
Safety on Construction

GREAT STRIDES have been made during the past two decades in rendering construction safer. One group prominent in bringing this about is the National Safety Council's Construction Section. And its recent conference in Chicago continued this good work.

It is interesting to note that several speakers felt it necessary to stress two basic advantages of better safety—a safe job is a more efficient job; and good safety records reduce insurance costs. The fact that these experts in the business of construction safety emphasize these obvious arguments at this late date indicates that there are still contractors who need to be convinced. That is not a very palatable fact, but it must be faced nevertheless.

At the same time, other parts of the program were directed to the more knowing group who already practice safety. For example, J. A. DeLuca, retiring chairman of the section and safety director of du Pont's construction division, talked of such yardsticks of safety measurement as "violation frequency rates" and equations for foreman ratings. He also introduced the idea of Safety Task Assignments or STA—which envisions that safety suggestions accompany every job assignment that a construction supervisor makes. Since the du Pont organization is outstanding in its use of safety measures on construction there can be no doubt that these scientific refinements have some real substance to them.

The important point is that safety education must be beamed to all levels—from the beginners to the graduate students, as it were. The Construction Section of the National Safety Council, in pushing its program along such lines, is performing a valuable service for the construction industry. There remains only the thought that with more active support from contractors (many of whom do not appreciate the value of safety advice) or from the parent council (whose efforts are often too closely focused on industrial safety) the construction section could increase its value many times. Gaining that support is important to continuing progress in construction safety.



DRIVING IS SAFER
ON THIS "SINGING" HIGHWAY

Double-Duty traffic marker
guides drivers by sound and sight both day and night

The eyes and ears of drivers are kept constantly on the alert by this double-duty traffic marker.

Made with Atlas White Cement, the marker is constructed flush with the highway level. During the day it furnishes a bright ribbon of white, contrasting with pavement gray, clearly outlining the road ahead. At night, the saw-tooth faces of the marker catch headlight rays and reflect them back to the driver—safely guide him along the highway. And on rainy nights, the wet faces become even more mirror-like, give good visibility when most needed.

In addition—in *any* kind of weather—drivers can keep safely in lane. Because when a car veers out of lane, its tires ride the ribbed surface, causing a distinct hum-m-m or whine to warn the driver to get back in line. Thus this double-duty traffic marker is helping to make highways safer, promoting driving safety by sound and sight.

Send for descriptive booklet to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Bldg., New York 17.

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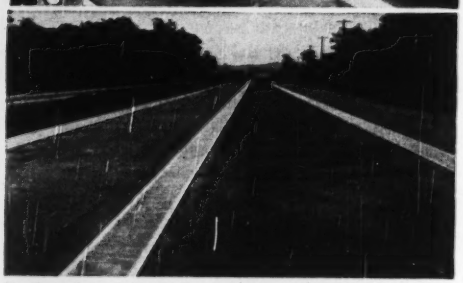
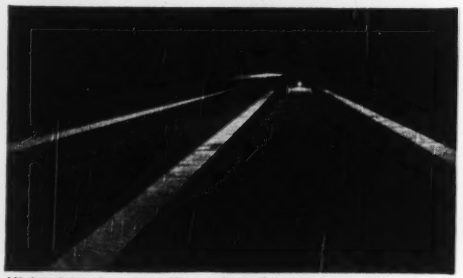


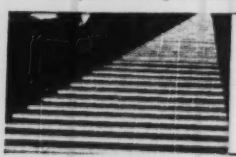
Daytime view of two traffic markers on 3-lane highway in New Jersey shows contrast of Atlas White Concrete against pavement gray. Visibility is high. (White Concrete Reflecting Curb at left.)



Night view of same traffic markers. Driver is guided by sight as saw-tooth faces reflect headlight rays back to driver, and by sound if car veers out of lane and tires pass over corrugated surface.

**"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

ENR-TM 10



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ENGINEERING NEWS-RECORD

NOVEMBER 23, 1950 VOL. 145 NO. 21

Metal Control Seen in 1951; More Construction Cutbacks

N.P.A. and Department of Commerce officials expect complete metal controls and extension of limits on "non-essential" building; orders will be "temporary"

The government will take complete control over all uses of steel, aluminum, copper by late spring or summer. That's the view of the top authorities in the National Production Authority, the Department of Commerce agency that has authority over these critical materials under the Defense Production Act.

NPA officials are convinced that the size of our military program, imposed on top of a tight civilian economy, will force them to a "controlled materials plan" very similar to the one put into effect by the War Production Board during World War II.

• **More cutbacks**—For the construction industry, this means further cutbacks on "non-essential" construction, and complete government review of all industrial, commercial, and housing construction. Only construction that would be permitted in future will be that which gets approval of the Washington authorities as "necessary either to the military or the essential economy."

Such tough controls are based on this assumption: that the taxpaying public, and Congress, will continue to support a large level of defense expenditures, that is, $40-billion per year or more.

Of course, complete control over the economy will come immediately if the U. S. becomes involved in an all-out war.

NPA officials already refer to their present controls as "temporary." Their reasoning goes like this: at the outset, the agency had the problem of issuing regulations that put "first things first." The priority system of DO-rated orders gives the military a preference—a clear track throughout the economy to get its requirements when it needs those requirements.

But this "one-band" priority for the military leaves non-military users competing for the smaller supply of materials left after the military gets its requirements.

To take steps to help out here, additional "temporary" controls have also been promulgated. These cut back on "non-essential" uses of scarce materials, in order to provide them for defense production and for the stockpiles.

The cut-back on non-essential amusement construction is one such order—and officials predict that additional bans on end-uses of critical materials will come shortly.

• **Aluminum cited**—Another kind of regulation that provides scarce materials for military uses and stockpile is the "conservation order"—NPA order M-7, the aluminum cut-back is the leading example. This order, in effect, slashes all civilian users of aluminum by 35%—thus freeing that amount for aircraft production and stockpiling. (An effect of this order is likely to be removal of aluminum from house-construction use.)

Still another kind of regulation for diverting materials to end-uses the officials deem necessary is the "allocation program." This is a program in which the NPA officials direct steel producers to supply specified tonnages of specified steel products to specified fabricators who are authorized to use these steel products to fabricate specified end products. Thus far, there are two such allocation programs: one for freight cars, and one for great-lakes ore-carrying boats.

All these "temporary" orders and programs, however, result in a squeezing down of the free supply of copper, aluminum, and steel. Result is a tremendous competition for a share of this smaller supply, and an inevitable sharp spiraling of prices.

The solution to all this is the controlled materials plan, according to NPA. It wraps up in one bundle (1) ban on nonessential uses (2) allocation of critical materials for military and essential civilian uses.

TURNPIKE EXTENSION

The Pennsylvania Turnpike 100-mile eastward extension, from Carlisle, Pa. to a point near Norristown, now is open. The route was officially dedicated Oct. 23 (ENR, Oct. 26, p. 23), but close-out of construction delayed the actual opening until Nov. 20. Most of the concessions along the route also are open.

ROARING INTO THE RIVER, 1,100 tons of old truss from the Illinois Central railroad bridge at Cairo, Ill., falls 100 ft to splash Ohio-river banks. (ENR June 16, 1949, p. 10). The 518-ft section of the 61-year-old bridge has been replaced by a new steel span (upper right). The entire bridge will be replaced this way, section by section. Old steel will later be salvaged from river.

Voters slash state and city borrowing to pass only 65% of municipal bonds

Returns on $800 million of bond proposals show cutback of $300 million; schools lead, hospital bonds in second place

The ballot box proved slim as a needle's eye for municipal and state borrowing proposals this November 7. Voters were in no mood to rubber-stamp construction and other loan projects, but moved selectively among proposed issues.

Partial returns reported to ENGINEERING NEWS-RECORD show how balloting went on nearly $800 million of the $975-million in bond issues up for citizen-approval.

Certified by the public was $500 million of borrowing, leaving rejects by the wayside to the tune of $300 million—about 35% mortality.

• **The Pruning Hook**—The economy mood contrasts with last year's bond elections when a much larger sum invited and got the public's OK.

A year ago voters faced an imposing $1.6-billion of prospective bonds and cut them only 19%.

In Louisiana the pruning hook was out. Voters vetoed $210 million of municipal and state bond proposals. Among the programs cut to the ground: the $140-million state road program.

Washington State also saw some favorite projects take a whipping from unsympathetic taxpayers. Voters refused $20,000,000 for the state's institutions of higher learning.

Seattle voters were particularly rough on construction and other projects this year. Electric power and light revenue bonds were turned down ($25.8 millions' worth); a library to cost $5,000,000 was vetoed, as was a planned $1,500,000 Civic Arts Center.

• **The Constructive Side**—But voters did not run all issues down the one way street to nowhere. Of the some $500 million approved by them, schools got by far the largest share of bond backing, with hospitals a close second.

Around $155 million of construction, improvement and extension got the go-ahead from voters at the polls this year (ENR Nov. 2, p 29).

• **For a Healthy Nation**—More significant is the place assumed by hospital projects as the second largest borrower after the educational system.

Hospital bonds known to have been approved total $96,000,000. Of this, the state issue for mental hospitals in Michigan contributed $65,000,000, and a similar issue in Washington state contributed $20,000,000.

Borrowing for sewerage and waterworks projects scored at $64,000,000 and streets and roads at $59,000,000.

• **The Lineup**—Big projects included:

Washington state borrowing for local-school aid: $40,000,000.

Ohio municipal issues totaling $70,000,000 for public schools.

Baltimore, Md.—$22,000,000 waterworks project, including a new reservoir.

Austin, Tex.—$20,000,000 borrowing total which includes $10,000,000 for the public schools.

Rhode Island's $12,000,000 highway program. And Philadelphia's $14,800,000 improvement project for the Market Street subway.

Road fund diversions unchecked

Results of the November 7 election show a defeat of anti-diversionists, who were out to stop misuse of highway use funds in two states.

Oklahoma voters had an opportunity to amend their constitution to include a prohibition of diversion of highway-use taxes, but the move was not popular. Measure was defeated.

In Tennessee the people were defeated. Although results of the election showed a vote three to one in favor of an anti-diversion amendment, a technicality stands in its way.

The Tennessee constitution adopted in 1870 never has been amended because changes must be approved by the majority of persons voting for candidates for the general assembly, a condition that was not fulfilled, and there seems little chance that the anti-diversion amendment will become law.

Vermont, however, is getting geared for the same battle.

Ninety-four organizations including 55 Pomona and subordinate Granges are on record in favor of an amendment to the state constitution limiting the use of revenues from gasoline and automobile licence fees to road purposes only.

Polling organizations of influence in the state for support of such a law is the Vermont Highway Users Assn.

If public-spirited Vermonters succeed in their effort to stop road-fund diversion in that state, they will add another non-diversion budget to those of 21 states that already have amended constitutions to outlaw the practice.

Shipments pass output; cement stocks shrink

US exports running at half of last year while imports develop surprising volume; users feel the squeeze.

The cement industry is heading into a record year.

Production is expected to top 220 million barrels for 1950, and shipments to run close to 225 million barrels. Production for the year as reported by the Bureau of Mines through September is running 5.5 percent ahead of 1949, and shipments are running 10 percent ahead of last year.

Because of record shipments, cement output has not been able to maintain industry stocks. They have dwindled from 23.6 million barrels in February of this year to a September reserve of only 7.6 million barrels.

Fall of 1950 finds cement ranking next to gypsum as a shortage item in monthly materials reports from 69 market centers in continental U. S.

• **Half the nation**—As of October, half of these centers indicated cement shortages. Most shortage reports came from areas east of the Mississippi. In the south and northeast the problem is evidently not acute. Shortages appear to be local or regional in character.

Although September's low stocks were at 7.6 million barrels, there have been lower reserves in the past. In October 1947 national cement stocks were only 5.7 million barrels, and in October of 1948 they were 6.1 million barrels.

The shortage is reflected by a large drop in United States exports of cement. In the first eight months of this year only 1.4 million barrels of portland cement were exported—an annual export rate of 2.1 million barrels—as against shipments outside of continental United States of 3.9-million barrels of portland cement in 1949.

In contrast are imports of cement which never before have promised to supply any volume demand in the United States. In August alone the United States imported 110,000 barrels of hydraulic cement. This contrasts with an all-year import of 110,000 barrels in 1949.

• **The pinch**—Cement users are beginning to feel the shortage.

Members of the National Ready Mixed Concrete Association have protested to cement manufacturers that highway contractors have been given enough cement to operate at capacity while they have not always had enough for their operations.

Cement industry spokesmen say that signed agreements with highway contractors have had to be honored. Now ready-mix people are beginning to ask for signed agreements too.

Stadium gets go-ahead as M-4 hardship case

County stadium gets NPA nod in spite of its amusement use; Milwaukee County already had ordered steel

Milwaukee County, Wis., has received permission to build a $4,200,000 stadium—a type of structure covered by the recent National Production Authority order M-4 banning recreational construction.

NPA Administrator W. H. Harrison granted an exception to the M-4 order because enforcement would mean "unusual hardship" in this case.

Although construction of the stadium proper had not yet been let to contract, the county already had ordered $617,000 worth of steel.

In explaining the exception Harrison noted that Congress had approved transfer of land from the Veterans Administration to Milwaukee county "for the specific purpose of being the site of this stadium," that bonds had been sold and work on excavation and drainage started.

Harrison further stated, however, that no priority on materials could be provided by the NPA.

• **Minneapolis takes heart**—As a result of the Milwaukee stadium ruling, Minneapolis park officials revived hope that they would be able to continue the initial stage of a stadium project. They point out that, as in Milwaukee, bonds for the Minneapolis stadium have been sold and work done.

Total cost of the present stage of the Minneapolis stadium project is about $600,000. This includes parking areas and a new baseball field.

MILLION DOLLAR HOME for West Virginia state offices will stand on piles driven by this rig working in Charleston. In the background is the state capitol. The new building will be six stories high.

Housing starts at new high already top 1949 total

Housing starts for the first ten months of 1950 total more than 1,209,100 exceeding last year's record 12-month score by 184,000. By the time December rolls around to become 1951, this year's sum total is expected to exceed 1,300,000 nosing 1,400,000.

But a change is entering the picture in the United States. Preliminary estimates by the Bureau of Labor Statistics for October indicates 103,000 starts—just 1,000 short of October a year ago.

Federal Reserve Board eases Regulation X

Conventional financing allowed home owners who started building prior to Oct. 12; grace period ends May 1, 1951

The Federal Reserve Board has eased Regulation X—the Oct. 12 curb on housing credit—for people who had started building homes prior to that date. Under a new amendment, anybody who had begun construction of a new house before Oct. 12 is free to arrange conventional financing for his property without any restriction up to May 1, 1951.

Regulation X had originally allowed exemption for any home builder who could show substantial commitments prior to Aug. 3, the date set by Congress in the defense act. Hardship appeals to FRB revealed many innocent and meritorious cases of people who had started homes between Aug. 3 and Oct. 12. To simplify the whole matter, FRB issued the new amendment exempting all such cases. It set a terminal date of next May 1 in order to close up its exemption business at that time. Thereafter, all new home financing will be subject to the regulation.

Another amendement extends the time during which a lender may furnish evidence to FRB of a written agreement or an oral understanding with a builder to furnish credit for housing that had not yet been started on Oct. 12. The lender now has until Jan. 1, 1951, to send the FRB a letter stating the case. Prior to the amendment, Regulation X required that the letter be mailed by Nov. 11.

Apartment credit controls to be light

Vincent B. Smith
ENR Washington Bureau

Construction will not suffer much from forthcoming credit controls on real estate. Mild restrictions on apartment construction credit will be ready about Dec. 1. A little later, the Federal Reserve Board is expected to declare a hands-off policy on credit controls for industrial and commercial building. (To clear the air, the Board may possibly state its plans for industrial-commercial in an earlier preliminary announcement.)

Thanksgiving is helping to delay issuance of credit regulations for rental housing until early December. This is no week in which to invite a nationwide industry group to sit down in Washington with the Federal Reserve Board and the Housing and Home Finance Agency. And a meeting of that kind will be held before restrictions on credit for apartment construction are announced.

• **Won't be severe**—When they come out, the new curbs won't be a whole lot tougher than the requirements now in effect for FHA-insured mortgages on rental properties. (The Oct. 12 credit restrictions—regulation X and its complements—did not apply to multi-family construction. That type building is covered only by the stiffened FHA curbs of July 19.) If the FRB and HHFA devise a uniform, workable appraisal basis equivalent to existing FHA standards, the new rental housing regulation will probably require a down payment (equity investment) of about 20%.

Present FHA requirements under Section 207 of the National Housing Act—the section that covers most FHA-insured financing of multi-family construction—permit a limited-dividend corporation to get a mortgage on 80% of that portion of the value which does not exceed $7000 figure that the requirements for conventionally-financed apartment projects will be about the same.

There are two reasons for that assumption. First, both the FRB and the HHFA want to maintain the proportionate volume of rental construction during the emergency period. Apartments are more essential in an era of partial mobilization than in quieter peacetime.

Second, the two agencies agree that the restrictions must be so written as to encourage rental project planning for 1952. Commitments already made probably would assure a fair share of rental construction for 1951, but big apartment projects take a long time to blossom. The FRB and HHFA want to hold the door open for investment builders to start making plans for the future.

CIVIL DEFENSE

Water and the atom commanded the attention of the Massachusetts Highway Association in Boston as Normand O. Pothier, state planning board engineer, minimized damage done to highways by the bomb and called for preparations looking to the safety of the state's water supply.

Maps, he said, should be made of all water mains, valves, hydrants, cross connections, pumps and storage reservoirs in exact location. Copies of the maps should be kept in several different locations for safety.

Surveys showing where milk tank trucks, swimming pools and reserves of chlorine are located were also urged to meet emergency and disaster needs of the public and emergency transportation needs.

Stockpiling of repair parts, and attention to see that gate valve boxes under streets are not covered by pavement were other suggestions made.

Royal Canadian Mounted Police and security police are guarding the Ontario Hydro Electric Power Commission's plants and substations according to Robert H. Saunders, chairman. Visitors on construction of new power plants are being restricted. "Too-easy accessibility" of stations to the public is being reduced.

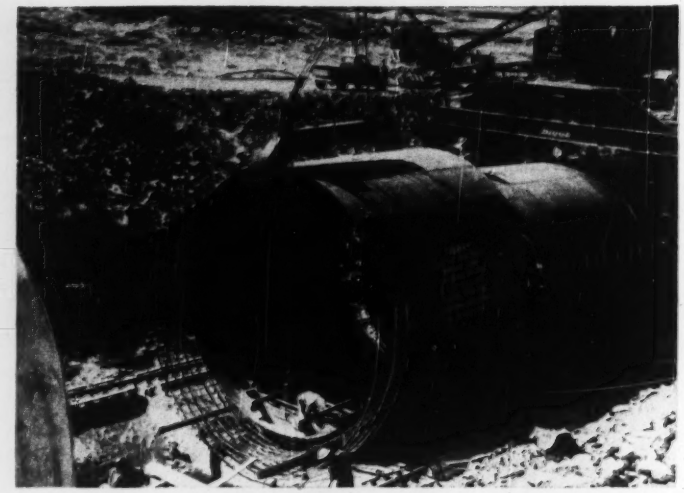
Mock atom bombing of Houston, Tex., is in the works. Washington, D. C., Eugene Werlin told the Texas Society of Architects. Plans may come off in another three months. Designs that would resist the atom in the construction of bomb shelters were a matter of interest at the convention.

Surveyors' union wins recognition by employers

The Building Trades Employers Association of New York Nov. 13 granted recognition to the Architectural and Engineering Guild, AFL, Local 66 in the five boroughs of New York City.

The decision ended a week of picketing which had slowed construction on four housing projects of the New York City Housing Authority.

The 100 surveyors involved in the strike were able to stop all work on the Pomonoc project, Queens, delay work at the Astoria project, also in Queens, and discourage half of 1000-odd workers employed on the Farragut project, Brooklyn, and the Melrose picket lines. Picketing began November 6.



SOAP LAKE SIPHON'S last section of pipe for the lined section is fitted into place ready for concreting. This steel-plate inner-liner is 22 ft, 4 in. in diameter. The Bureau of Reclamation Columbia Basin project in eastern Washington state uses 411 of these sections. (ENR Dec. 22, 1949, p. 36)

Gray report asks lumping of foreign aid control

Gordon Gray, special assistant to President Truman, in his report on foreign economic policies has recommended the consolidation of Point 4 technical assistance with other forms of foreign aid.

The report praised ECA. It is thought in Washington that recommendations will set in motion the transfer of Point Four from State to ECA.

Should the transfer develop, it could affect projects in undeveloped countries such as Iran. (ENR Nov 9, p 25).

Plasterers and lathers reach interim agreement

Lathers returned to their jobs Nov. 14 in the Chicago area after the settlement of an 11-week strike and lockout that delayed completion of $100,000,000 of construction (ENR, Nov. 2, p. 24).

The Employing Plasterers' Association, representing 180 plastering contractors in three counties, accepted an "interim agreement," which Lathers' Union, Local 74, AFL, approved Nov. 8.

Under the settlement's provisions, lathing contractors may submit bids for lathing work to plastering contractors, architects or owners of new construction. These bids may apply to labor, materials and equipment, or a combination of them.

Employing plasterers may choose any one or several lathing contractors for the job. Disputes unsettled in negotiations are to be arbitrated.

President Patrick F. Sullivan and Earl J. McMahon of the Chicago Building Trades Council worked out the settlement proposal.

The union struck over its demands to bid for separate lathing contracts. Plastering contractors locked out 100 lathers after 450 lathers left their jobs. For years plastering contractors in the Chicago metropolitan area bid on plastering and lathing and then sublet the lathing.

Charles P. Hoover dies; water purification expert

Charles P. Hoover, 66, superintendent of the Water Department of Columbus, Ohio, and a widely known water purification chemist died Nov. 14. Mr. Hoover and his brother Clarence B. Hoover, who died a year ago, pioneered in water treatment processes and perfected many methods later adopted by cities all over the world.

Charles Hoover was a graduate of Ohio State University and joined the Columbus Water Department in 1908. Several years later he was named chief chemist, a place he held until a year ago when he was appointed superintendent to succeed his brother. He was consulting engineer for more than 40 American cities. Many years ago he received international recognition through his manual, "Water Supply and Treatment," the 6th edition of which now is being printed.

CONSTRUCTION BUSINESS

Building labor wages and welfare set

The final scores for New Jersey's building trades on their 1950 wage agreements include the highest hourly construction wage rate in the United States, a large increase in number of welfare funds, and wage increases in 37% of the new contracts. Also expiration dates extended into 1952, on 18% of contracts, into 1953 on 1%.

And these vital statistics come out of the 1950 agreements recorded by the Building Contractors' Association of New Jersey in The New Jersey Building Contractor for the month of September.

New Jersey labor is highly organized in county groups, with complex situations on construction operations that cross county lines. Each job has its special conditions as to employment of resident vs out-of-county workers, although a contractor can generally bring in key workers. Where conditions are favorable up to a 50-50 matio in out-of-county vs county construction workers is allowed. Where a lower wage scale prevails than in their home county, out-of-county workers are usually paid travel time to compensate.

This year's agreements—covering 13 construction trades in 8 counties and 2 metropolitan areas—provide:

• **Welfare funds,** established in 34, or 21%, of the agreements this year where only 4 such funds existed last year.

The most popular benefits were 2½% and 3% welfare funds. The ironworkers in all counties chose welfare funds of 2½%—or of 9 cents an hour—instead of pay boosts. Except in Essex County, where a 3% welfare fund will go into effect Jan. 1, 1951, the plumbers and steamfitters contracts were renewed without charge. Three of the four unions that already had the welfare funds kept the same rates: Camden and South Jersey electricians, a 1% fund; sheet metal workers, 7½ cents an hour and Elizabeth painters, 7 cents an hour. The fourth, Essex County painters, 7½-cents-an-hour fund was raised to 10 cents until Nov. 1, 1950, then to 21 cents an hour for 5 years. In addition the painters got a 15-cent an hour wage increase until Sept. 1, 1951, when then will get 10 cents an hour more.

• **Wage increases** over the previous contracts ranging from 5 cents to 50 cents, with one exceptional increase range of 7½ to 95 cents for painters in Bernardsville. The average increase for those given wage boosts was 23 cents an hour. This is an across-the-board average of about 8% (compared with a 4 to 6.5% increase in the 20-cities wage average reported by ENR).

Essex and Hudson County bricklayers get $3.25 an hour. Essex County cement finishers and plasterers and Mercer County electricians also draw the same hourly wages. And the 7-hr day prevails in Essex and Hudson Counties.

• **Expiration dates** April 1-30, 1951 prevail on 25% of these agreements, March, 1951 on 20%. Two-year contracts, with 1952 expirations, account for 18%, January, 1953 for 1%. May and June 1951 account for 18%, while December and January account for another 11%.

The 1952 agreements are with five locals of each, bricklayers, cement finishers, laborers, plasterers; with one local each, carpenters, electrician, plumbers, steamfitters, lathers; with two locals each, roofers, sheet metal workers. The January 1953 agreements are with the electricians in both Princeton and Trenton, Mercer County.

New Jersey wage rates—1950—per hour, 8-hr day

Showing increases, benefits, expiration dates of agreements

City	Bricklayers 1950 rate	Bricklayers Expire date	Carpenters 1950 rate	Carpenters Expire date	Cement finishers 1950 rate	Cement finishers Expire date	Ironworkers 1950 rate	Ironworkers Expire date	Laborers 1950 rate	Laborers Expire date	Plasterers 1950 rate	Plasterers Expire date
Atlantic City & Vicinity	$3.00[A]*	7/18/52	$2.50*	4/ 1/51	$3.00[A]*	7/18/52	$2.75[i]	4/30/51	$1.60–1.80*	10/ 8/51	$3.00[A]*	7/18/52
Bergen Co.†	3.15[i]*	4/30/52	2.75[i]*	4/30/51	3.15[i]*	4/30/52	3.10[i]	3/31/51	2.00*	4/30/51	3.15[i]*	4/30/52
Camden & So. J.	3.00	4/30/51	2.50[A]	1/ 1/51	2.40	1/ 1/51	2.80[i]	4/30/51	1.60–1.70	1/ 1/51	3.00	4/30/51
Essex Co.	3.25*	4/30/52	3.00*	3/31/51	3.25*	4/30/52	3.10[i]	3/31/51	2.19[m]–2.44	3/31/51	3.25*	3/31/52
Hudson Co.	3.25*[n][o]	1/ 1/51	3.00*[o]	5/31/51	3.15*	1/ 1/51	3.10[i]	3/31/51	2.00	7/ 7/52	3.20*[n]	1/ 1/51
Mercer Co.												
Princeton	3.00[c]	4/30/51	2.50[A]	4/30/51	3.00[c]	4/30/51	3.00[i]	4/30/51	1.65*	4/30/51	3.00[c]	4/30/51
Trenton	3.10[c]	6/30/51	2.65	4/30/51	3.10[c]	6/30/51	3.00[i]	4/30/51	1.80[c]	4/30/51	3.10[c]	6/30/51
Middlesex Co.												
New Brunswick	3.00[c]	5/21/52	2.75[A]	3/31/51	3.00[c]	5/21/52	3.10[i]	3/31/51	1.90*	6/20/52	3.00[c]	5/21/52
Perth Amboy	3.00[c]	5/ 1/52	2.50	2/10/51	2.90	4/30/52	3.10[i]	3/31/51	1.90*	3/31/52	3.00[c]	4/30/52
Passaic Co.	3.15[i]*	4/30/51	3.00[c]*	4/30/52	3.15[i]*	4/30/51	3.10[i]	3/31/51	2.20*[q]	4/30/52	3.15*[i]	4/30/51
Somerset Co.												
Bernardsville	3.00[A]	3/31/51	2.25–2.50	3/31/51	3.00[A]	3/31/51	3.10[i]	3/31/51	1.875[d]	12/31/50	3.00[c]	3/31/51
Bound Brook	3.05*	3/31/51	2.50	3/31/51	3.05*	3/31/51	3.10[i]	3/31/51	1.90*	3/31/52	3.05*	3/31/51
Union Co.												
Elizabeth	3.15[A]	12/31/50	2.50	12/31/50	3.15[A]	12/31/50	3.10[i]	3/31/51	2.00[A]	4/30/51	3.15[A]	12/31/50
Plainfield	3.15[A]	4/30/51	2.50	3/31/51	3.15[A]	4/30/51	3.10[i]	3/31/51	2.00[A]	4/30/51	3.15[A]	4/30/51

City	Electricians 1950 rate	Electricians Expire date	Painters 1950 rate	Painters Expire date	Plumbers & Steamfitters 1950 rate	Plumbers & Steamfitters Expire date	Roofers 1950 rate	Roofers Expire date	Sheetmetal workers 1950 rate	Sheetmetal workers Expire date	Lathers 1950 rate	Lathers Expire date
Atlantic City & Vicinity	$2.625[e]*	5/31/51	$2.25*	4/ 1/51	$2.50*	3/31/51	$2.50*	3/31/51	$2.50	5/30/51	$2.65*	6/30/51
Bergen Co.†												
Camden & So. J.	3.00[g]	5/31/52	2.30[c]	4/30/51	2.75	12/31/50	2.275		2.575[d]	5/ 1/51	2.85	4/30/52
Essex Co.	3.00[g]	6/ 1/51	2.50–3.00[i]*	11/ 1/50	2.875[jC]	4/ 1/51	2.85*	5/31/51	2.75[g]	5/31/51	3.00[A]	3/31/51
Hudson Co.												
Mercer Co.												
Princeton	3.25[A][k]	1/ 1/53	2.00[d]	5/ 1/51	2.75	6/16/51	2.50	6/30/51	2.75	6/30/51	2.65	4/30/51
Trenton	3.25[A][k]	1/ 1/53	2.25	4/30/51	2.75	6/ 1/51	2.50	6/30/51	2.75	6/30/51	2.65	4/30/51
Middlesex Co.												
New Brunswick	3.00[A][g]	4/30/51	2.125[d]	A	2.75	3/31/52	2.75[A]	5/31/52	2.67[f]	5/31/52	2.90[g]	1/31/51
Perth Amboy	3.00[g]	4/30/51					2.75	5/31/52	2.67	5/31/52	2.90	1/31/51
Passaic Co.												
Somerset Co.												
Bernardsville	3.00	4/ 1/50	2.125–3.00[d]	6/30/51	2.75	3/31/51	2.85*	6/ 1/51	2.75	6/ 1/51	2.75	12/50[p]
Bound Brook	2.75		2.00	3/31/51	2.75	4/ 1/51	2.50	6/ 1/51	2.50	4/ 1/51	2.50	
Union Co.												
Elizabeth	3.00[A]	6/ 1/51	2.25–3.20[g]	4/ 1/51	2.875[C]	4/ 1/51	2.85*	6/ 1/51	2.675[m]	5/31/51	2.80	1/ 1/51
Plainfield	3.00[g]		2.00–2.50	3/31/51	2.75[D]	3/31/51	2.85	5/31/51	2.675[m]	5/31/51	2.75[A]	4/ 1/51

Increases over previous contract;
[a] 5¢ [b] 6½¢ [c] 10¢ [d] 12½¢ [e] 15¢ [f] 17–17½¢ [g] 20¢ [h] 25¢ [i] 7½–95¢ [j] 35¢ [k] 40¢ [l] 50¢

[A] No signed contract [B] Not stipulated [C] Steamfitters expires 4/20/52 [D] Plumbers, Steamfitters get $2.875 an hour.

Benefits; PH-paid holidays W-welfare fund
[1] plus 10¢ in lieu of PH [2] plus 10¢ in lieu of W [3] 2¢ hr W [4] 7½¢ hr W [5] 9¢ hr W [6] + 1% W [7] 2½% W [8] 3% W [9] 3% W eff 1/1/51 [10] 20¢ hr pension fund

[m] 7-hr day
† Except Garfield, Lodi, East Paterson
§ Effective 1/1/51
‡ 10¢ hr W till 11/1/50, then 21¢ hr for 5 yrs and wage raise to $2.65–3.15, with 10¢ hr. more 9/1/51

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 71, went to press.)

Steel Plant—Koppers Company, Pittsburgh, Pa. will build coke ovens and steel making facilities to cost about $30,000,000 for the Republic Steel Company plant at Cleveland, O.

Hospital—Public Welfare Department, City of Springfield, Mass., plans to construct municipal hospital. Estimated cost is $10,000,000. Coolidge, Shepley, Bulfinch & Abbott, Boston are architects. Bids for first section will be taken about Feb. 1.

Dam and Power Plant—Morrison-Knudsen Co., Inc., Boise, Idaho, has been awarded contract to construct dam and power plant on Snake River near Mountain Home, Idaho. Cost is about $18,500,000 and work is being done for the Idaho Power Co., Boise.

Refinery—Badger & Sons Co., Boston, Mass., has been awarded contract for design and construction of processing equipment at $10,000,000 proposed refinery at Baton Rouge, La., for Continental Oil Co., Houston, Tex.

Apartment—Paul Tishman Co., Inc., New York, will erect a $7,000,000 apartment in New York City for the Sutton 53rd Street Corp., New York. The project, designed by Arthur Weiser, New York, will be 20 stories high, the tallest postwar apartment and the first building of this height in New York to be constructed entirely of reinforced concrete.

Automobile Assembly Plant—Austin Motor Co., Birmingham, England, is negotiating for site in Mexico City, to construct automobile assembly plant to cost $32,500,000.

Housing—New York City Housing Authority has just selected Rogers & Butler, New York, to design 40 buildings for the Edenwald Public Housing, Bronx. Estimated cost approximates $16,034,500.

Turbine Generator — Hydro-Electric Power Commission of Ontario, Toronto, awarded contract for a turbine generator at Windsor steam power plant, to English Electric Co., Ltd., St. Catherines. Estimated cost $10,000,000. H. G. Acres & Co., Niagara Falls, Ont., are engineers.

Turnpike—New Jersey turnpike Authority, Trenton, received low bid Nov. 17, for improving a section of New Jersey Turnpike in Union and Hudson Counties from Gull Contracting Co., and Tully & Di Napoli, Inc., Flushing, N. Y. Bids for bituminous concrete paving ranged from $5,632,695 to $5,805,495 and on portland cement concrete from $6,323,995 to $6,496,795, with alternates depending on type of shoulders used.

Apartments—E & M Greenway, Jackson Heights, N. Y., plans constructing five apartment buildings in Jackson Heights, to cost about $7,772,000. Erwin Gerber, Newark, N. J. is architect.

Tunnel and Approach Ramps—Del Balso Construction Co., Brooklyn, N. Y. was low at $3,988,426 for tunnel and ramp approaches on First Ave., near United Nations Building, Manhattan, when Office of the Manhattan Boro President, New York, opened bids Nov. 17.

Office—Department Public Works, Ottawa, Ont. will open bids Dec. 13, for superstructure of office building for Dominion Bureau of Statistics, at Ottawa. Total cost is $4,000,000.

Housing—Lexington Housing Authority, Lexington, Ky. plans housing project to cost $4,000,000. Gillig, Watkins & Wilson, Lexington, are architects.

Oil Pipe Line—Gulf Oil Refining Co., Houston, Tex. is asking bids for the construction of 150 miles crude oil pipe line from Lumberton, Miss., to Mobile, Ala., including pumping stations. Estimated cost $4,475,000.

Housing—Hagstrom Construction Co., St. Paul, Minn., has been awarded a $3,194,000 contract for the Franklin Delano Roosevelt Public Housing in St. Paul, Minn., by the Housing & Redevelopment Authority of St. Paul. W. M. Ingemann, M. V. Bergstedt and W. B. Calvin, Jr., all of St. Paul, are architects.

Plant Expansion—Courtaulds (Canada) Ltd., Cornwall, Ont., will announce details at end of year for $3,000,000 plant expansion planned at Cornwall, Ont.

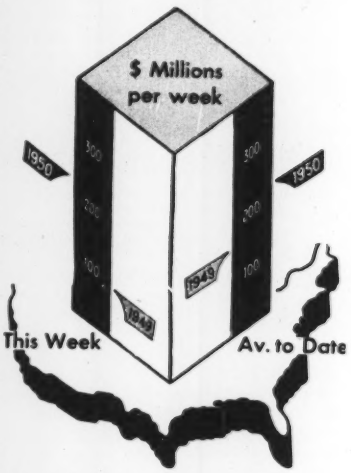
Bridge—North Omaha Bridge Assn., Omaha, Neb., will open bids Dec. 19, for the construction of a bridge over Mississippi River, to cost $2,000,000. Harrington & Cortelyou, Kansas City, Mo., are engineers with R. F. Ferguson, Omaha, as associate.

Office—Utica Mutual Insurance Co., Utica, N. Y. plans a $2,000,000 office building in Utica. Childs & Smith, Chicago, are architects.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost.	Nov.'50 527.85	253.74	110.67
Bldg. Cost	Nov.'50 388.85	210.20	110.56
Volume	Oct.'50 471	191	136



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

Week of Nov. 23, '50	This Week	Cumulative 47 wks 1950	1949	% chge
Federal	$13.1	$1,081.4	$929.7	+16
State & Mun.	79.1	3,391.1	2,882.4	+18
Total Public	$92.2	$4,472.5	$3,812.0	+17
Total Private	142.9	6,194.1	3,481.8	+78
U. S. Total	$235.1	$10,666.6	$7,293.8	+46

Contracts by type of work

	This Week	Cumulative 47 wks 1950	1949	% chge
Waterworks	$3.3	$199.7	$188.9	+6
Sewerage	3.0	257.7	257.8	—0.06
Bridges	8.8	341.5	329.5	+4
Highways	23.5	1,143.0	836.4	+37
Earthwork, Waterways	6.6	375.4	476.6	—21
Buildings:				
Public	31.2	1,519.5	1,091.8	+39
Housg., pub.	9.5	291.8	353.9	—18
Housg., priv.	47.2	2,947.1	1,604.8	+84
Commercial	18.3	889.4	531.3	+67
Industrial	53.9	1,484.4	884.3	+68
Unclassified	29.8	1,217.1	738.4	+65

NOTE: Minimum size projects included are: Waterworks and waterway projects, $25,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 47 wks 1950	1949	% chge
NON-FEDERAL	$522.0	$432.5	+21
Corporate Securities	2,195.3	2,061.2	+2
State and Municipal:			
Excl. housing	2,124.2	1,986.3	+7
Housing	631.3	742.0	—15
FEDERAL	2,829.1	1,711.7	+65
Total Capital	$8,211.9	$6,937.7	+18

Heavy stream clearance spending seen

Stream pollution last week had raised a $167,000,000 challenge to municipalities in six states.

The challenges—and the answers—included:

Pennsylvania speeded $22,000,000 of cleanup effort as part of a $60,000,000 program scheduled to be completed by 1953.

Within the next few weeks the $11,000,000 Northeast sewage treatment works in Philadelphia will be placed in operation, and construction of the Southeast works is well advanced. Under way in the city is the building of huge interceptors and work on the Southwest treatment works.

In Bethlehem, Pa., a $4,000,000 project for the construction of sewers, interceptors and a sewage treatment plant is launched. The program will improve the Delaware watershed.

Norristown, Pa., is spending $1,350,000 for additions to its sewage treatment works in compliance with orders from state's Sanitary Water Board. New Cumberland, Pa., has also gone ahead with a $1,127,000 program for the construction of sewers, interceptors and a sewage treatment plant by awarding a contract on the project. Neighboring Lemoyne is completing a sewage installation at a cost of $830,000. Mechanicsburg, also in Cumberland County, has just finished a sewage treatment works and the installation of sewers and interceptors. The program cost the town $1,850,000.

Altoona, Pa., is in the first stages of its cleanup job, having awarded $1,400,000 in contracts to build two sewage treatment plants. Other Pennsylvania cities that plan to spend anywhere from $32,000 to $870,000 are: Schuylkill Haven, Reading, Darby, Mifflinburg, Ellwood City, Grove City, Upper Providence, South Connellsville, Conneaut, Lake Borouh, and Downingtown.

• **Northeast plans**—Boston, Mass., reports a $12,000,000 project to clear Dorchester Bay of sewage from the disposal plant at Moon Island in its harbor. The project will supplement a three-point, $25,000,000, program now under way to end pollution in the harbor and miles of adjacent shore. The new project now considered will connect Moon Island disposal plant with Deer Island, where an 18-community treatment plant is authorized to be built.

The International Joint Commission has issued its technical advisory board's report on pollution of Niagara River. Correction, it says, will cost $19,100,000.

Blame for pollution is laid squarely at the door of the United States. Injury to health was cited, including 10,000 cases of gastro-enteritis reported in Niagara Falls among water users. In many areas the water is unsafe for bathing purposes. Municipal works needed to meet the minimums laid down in the report would cost $9,500,000 of which $7,250,000 would cover facilities for U. S. communities. Industrial waste treatment would cost an equal amount, all but $100,000 resting on the U. S. side of the border.

Meanwhile in Buffalo the sewage authority has plans for a $2 million expansion of its Bird Island sewage disposal plant to help clear industrial pollution from the Buffalo River.

City sues contractor on legal technicality

The city of Columbia, Mo., currently seeks to recover through court action a total of $549,196 from a contracting firm that had done work on the city's newly expanded water and light plant.

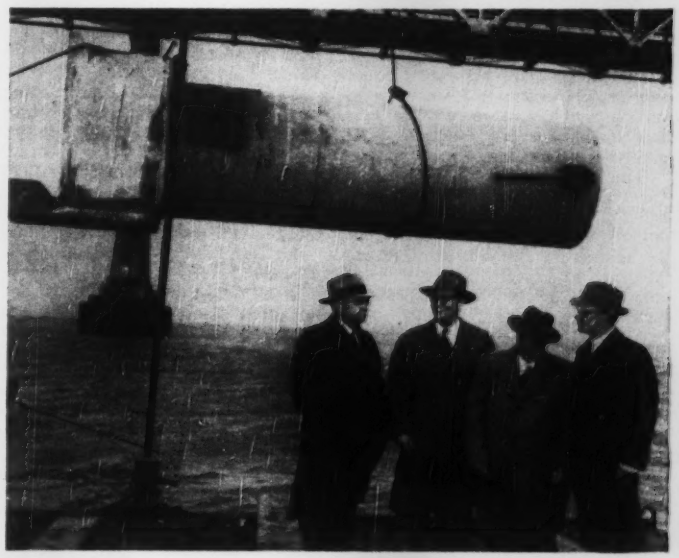
The suit was filed in the Saline County, Mo., circuit court at Marshall, where the contracting firm—L. M. Marcum Co.—has its headquarters.

Basis for the suit appeared to be a legal technicality—the city's attorneys charged that the contract under which the Marcum company operated for more than four years had not been recorded by the City Clerk in the "minute book" of city council proceedings. A second count terms the payment to the company "exhorbitant and unjust". City officials pointed out that the original contract contemplated a $20,000 job, which grew later to the much larger figure.

Observers pointed out, however, that the contract under which the Marcum company operated was a "cost plus 20%" contract, signed by Columbia's mayor, city clerk and city attorney, and has been constantly referred to for more than four years as a basis for payments for work and materials. Under terms of the contract, the firm was to receive an additional $100 per week for work supervision.

The original contract, added the observers, was an "open end" contract, including construction and materials necessary to complete the job and keep the existing power plant in operation at the same time.

The expanded plant has been completed and in operation for about six months. Plans and specifications for the $3,221,277 job were prepared by Burns and McDonnell, Kansas City consulting engineers. This firm did not, however, supervise the work.



LAST SECTION of Oakland's subaqueous portion of the outfall sewer ready for installation. On hand for the occasion are officials of the East Bay Municipal Utility District. Left to right they are Louis J. Breuner, president of the board of directors; John W. McFarland, general manager; Thomas S. Neilson, director, and Robert C. Kennedy, new chief engineer. (ENR June 15, p. 38)

ACROSS THE HIGHWAY is a strip of reinforced concrete to save U. S. Route 301 from wear and tear as giant, steel-treaded Army tanks cross. Two strips including the one shown have been put down by the Army at the A. P. Hill Military Reservation near Bowling Green, Va.

Road programs seek traffic easing

Spurred by the real need for road repair and easing of congestion—and hoping their plans wouldn't be cut by restrictions—highway officials this month were planning to spend millions of dollars on roads.

Among the plans are:

Ohio announced a $200-million construction program for 1951 and 1952 as against $80 million of highway construction completed in 1950. T. J. Kauer, state highway director says actual construction will depend on the amount of money the next legislature will appropriate, plus availability of federal funds.

The huge program he set forth for the highway department visions 765 miles of major construction, 230 new bridges, and 795 miles of resurfacing. In addition, a bituminous treatment program is expected to cost Ohio another $10,000,000 over the next two years.

TURNPIKE BANS MOTELS

Neither motels nor taverns will be given concessions along the New Jersey Turnpike, Paul L. Troast, chairman of the Turnpike Authority has announced.

The planning of concession areas Troast said includes gasoline stations, restaurants and lunch rooms, for which 11 locations are scheduled.

The Authority does not plan overnight accommodations because it feels these facilities are available in adequate numbers only a short distance from the throughway.

To engineer the vast road program the department will ask the state legislature to authorize it to hire consulting engineers. Since the state Supreme Court approved such procedure in a recent decision (ENR Nov 2, p 25) the highway department seeks further authority along these lines. The state architect is permitted to hire consultants on building programs. The highway department wants similar rights.

In Boston, Mass., the first section of the new $8,000,000 James J. Storrow Memorial Drive along the Boston side of the Charles River was opened to traffic. One 24-ft lane of the embankment roadway is open to traffic outbound to Soldiers' Field Road near Boston University Bridge from midtown Dartmouth St. Opening of the inbound lane is expected in December.

• **Detroit plans**—Detroit's traffic congestion is at last bringing action as Wayne County this week set aside $4,000,000 to widen and resurface some of the city's critical bottlenecks. Randolph at Gratiot is in the process of being widened, and officials now hope to extend the job the full length of the street and also widen another north-south thoroughfare, Wayne Street.

Behind these programs is a giant, long-range program of city expressways. By 1954 it is hoped that nine miles of the system's two major routes will be finished at a cost of $70 million. Motorists will then be able to drive north on the John Lodge Expressway from the Detroit River downtown to Pallister Street, and east on the Edsel B. Ford Expressway from Wyoming Ave. to John R. Street. Fourteen-mile additions bringing these main routes to the city limits may be underway by 1954 at an estimated cost of $100 million.

Wisconsin has bought six miles of right-of-way for its new highway 41. Most of the purchases have been made in the town of Menomonie. The state is buying 13.4 miles of right of way in Washington County, 3.1 miles in Waukesha county and 2.3 miles in the northwest corner of Milwaukee county. Edward Reichert, right of way engineer, has extended his work into the town of Polk. Meanwhile construction has begun on a traffic interchange where highways 45 and 41 will separate northeast of Richfield. Other contracts are expected to be signed soon.

• **Master plan**—Baltimore, Md., reports its planning commission has incorporated a number of major highway projects into the official master plan.

The projects so favored were:

Realignment of the Jones Falls expressway; relignment of the Washington expressway as now being constructed; an inner-harbor crossing which would take the place of the proposed Curtis Bay-Fairfield harbor-crossing; two alternate locations for an inner highway ring around the central business area; and construction of a depressed highway between Franklin and Mulberry streets.

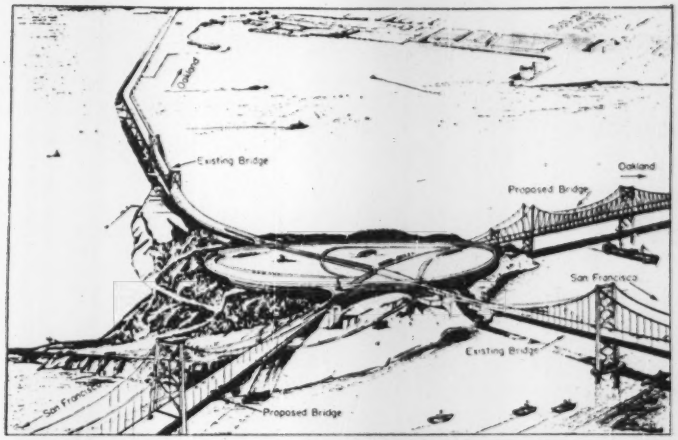
In Dayton, Ohio., the city commission is studying a $149,998 project to raise Helena St. three ft through the length of Island park where traffic has been blocked by flooding 52 times during the past 27 years. In 1950 the area has been flooded seven times. The raised surface would be paved with concrete, and stretch from the Helena St. bridge to the river levee on the east.

Maine is also negotiating to have a traffic survey made for the extension of the Maine Turnpike to Augusta. Cost of the survey, the state highway commission has indicated, will be $30,000.

HENRY J. BRUNNIER, HONORED

San Francisco's Building Industry Conference Board has honored Henry J. Brunnier, nationally known consulting engineer working in earthquake resistant construction. He has received the organization's "Award of 1950."

The Building Industry Conference Board represents engineering, contracting, architectural, materials and banking associations of northern California.



YERBA BUENA ISLAND would be beheaded to accommodate a traffic sorter as part of the latest proposal for a bridge across San Francisco Bay. At present the island is crossed by a tunnel.

S. F. Bay crossing revived by civic group

Hopes of starting construction of a second San Francisco Bay crossing within a relatively short time were revived late last month when a new master plan was presented to 270 civic and government leaders by the San Francisco Bay Area Council.

Previously local factions had deadlocked over the location and type of structure required to meet the increasing trans-bay traffic problem.

The master plan presented by the Council was devised by laymen determined to end the bickering which has stopped all progress toward a second crossing. (The Bay Area Council was formed in 1946 to promote economic and civic development in the nine counties touching the bay.)

The council plan suggests the simultaneous construction of two crossings. One from the San Francisco financial and retail area to the vicinity of the Oakland mole would cross Yerba Buena Island, the mid-point of the present bridge. It would form an "X" with the existing bridge in contrast to the parallel alignment that the State favored during the earlier proposals. It would cost an estimated $150,000,000.

The other crossing now suggested would be a low-level route from the southern part of San Francisco to serve the City of Alameda and connect with the East Shore Freeway. Cost of this unit was estimated at $75,000,000.

Unique phase of the first structure would be the cutting-off of the top of Yerba Buena Island to the level of the tunnel now connecting the suspension and cantilever sections of the present crossing. The flat top would be utilized as a traffic distribution center. Long range planning calls for construction of other bridges to the traffic center, including one for Marin County and one for Berkeley.

No detailed engineering studies have been made of the new proposal, but when routes were determined engineers and contractors who were consulted reported that construction was possible. If construction is started before the present bay bridge becomes toll-free, probably in 1953, financing is also feasible.

No definite reaction to the new basic plan was shown at the meeting. Each delegate was asked to take the plan to the group he represented, and another meeting will be held at a later date to try to establish a working program.

However, it is understood that many of those opposed to earlier proposals now realize the importance of prompt action and are in a mood to compromise.

Asphalt paving bids rise on N. J. Turnpike

Contractors' bids on paving for the New Jersey Turnpike have shown an increase in the unit price for asphaltic concrete and some decline in the price for portland-cement concrete since the bids on the first section of pavement were opened on Oct. 18 (ENR Oct. 26, p 25). On that first section (Allentown to the Raritan River) the bid for portland-cement concrete was $8.05 and for asphaltic concrete was $5.80, or a difference of $2.25 between the two types of surfacing.

For details of the alternate types of pavement under consideration for the turnpike, see p. 36 of this issue.

Prices per square yard in the low bids received since the Oct. 18 opening are as follows:

Location	Asphalt	Concrete
Deepwater to Woodbury	$6.15	$7.50
Woodbury to Hartford	6.40	7.50
Moorestown to Allentown	6.35	7.50
Carteret to Linden	6.25	7.10
Hackensack R. to Secaucus	6.45	8.25

No decision has yet been made as to the type of pavement to be laid in any one of these sections.

Higher taxes asked on heavy trucks

The trucking industry has been the subject of two state investigations.

In Washington state a specialist on highway-user taxes suggests $1,200,000 of the state's highway-user tax burden be shifted to heavy diesel trucks, trailers and buses, thereby favoring light trucks and trailers.

A study by Dr. James C. Nelson, the tax specialist, found that buses, diesel trucks, heavy trailers and semi-trailers all paid less than the average ton-mile fee for use of the highways.

Taxicabs, passenger cars, gasoline vehicles, logging vehicles and farm vehicles paid more than their share, the study found.

Dr. Nelson concluded that diesel-truck owners should pay three times the gross weight fees now paid in Washington state by gasoline trucks. In terms of fuel-use taxes, this would hike the levies from 6¼ cents to 12 cents a gallon for diesel operators.

Gross weight fees on trucks and trailers of less than 6,600 lb would be dropped, and fees on trucks between 6,000 and 12,000 lb would be reduced.

Dr. Nelson suggests that if the state legislature adopts his proposal it should be put into effect gradually over the next several years.

• **North Carolina**—North Carolina's Highway Department has had a study made by its Division of Statistics and Planning which shows that state highways are carrying an increasing number of trucks loaded at illegal weights, and traveling faster than the legal speed limit of 45 mph.

Twelve highway weighing stations were used to make the report. Critical axle loads exceeding the state limit of 18,000 lb increased 9% this year over the number reported last year by a similar study, and the number of truck axles is up 17% over last year, the study shows.

Something new in big-sewer excavation is started in Chicago when a . . .

Long-boomed backhoe digs deep trench

A LOT OF PAY-DIRT is involved in sewer construction—especially when it is a big sewer being built in open cut at considerable depth. A good demonstration is available in Chicago where the contractor is digging an open trench 21 ft wide by 28 ft deep to take a poured-in-place reinforced concrete sewer. Outside dimensions of the largest section are 19 ft 4 in. wide by 16 ft high.

The contractor had a 1½-cu yd dragshovel but its maximum digging depth would not permit it to handle this job. A conventional shovel was out of the question because of the depth of digging required, and clamshell excavating was considered entirely too slow.

A 2½-cu yd shovel, however, was already on the job, and it was felt that a trench hoe boom and dipper—never before built for an excavator of this size—would be the ideal tool for the economical handling of this large trenching job. Through the cooperation of the manufacturer, the boom, stick and dipper for the machine were rushed through from drawing-board to completion in record time.

The boom is 32 ft long and the dipper stick, 17 ft. Special cutting plates on the sides of the dipper trim the sides of the trench to neat vertical lines.

• **Storm water relief**—The $1,215,000 sewer project will take care of domestic sewage, but it also will give much-needed relief from storm water flooding of basements on Chicago's far west side. It is part of the Kostner Ave. system, largest of 16 sewer projects in an $85,000,000 sewer construction program that started in 1945 (ENR, Mar. 22, 1945, vol. p. 382).

The present contract includes 8,120 ft of reinforced concrete sewers, all poured-in-place. Inside surfaces of the sewers are a combination of two circles; one for the invert and the other for the arch section.

There are four sizes of sewers. Lengths, inside widths and inside heights are: 1,620 ft of 16.5x13.2 ft; 3,190 ft of 16.0x12.8 ft; 2,630 ft of 12.0x9.6 ft; and 680 ft of 8.5x8.5 ft. Work was started last May, and completion is scheduled for next January 1.

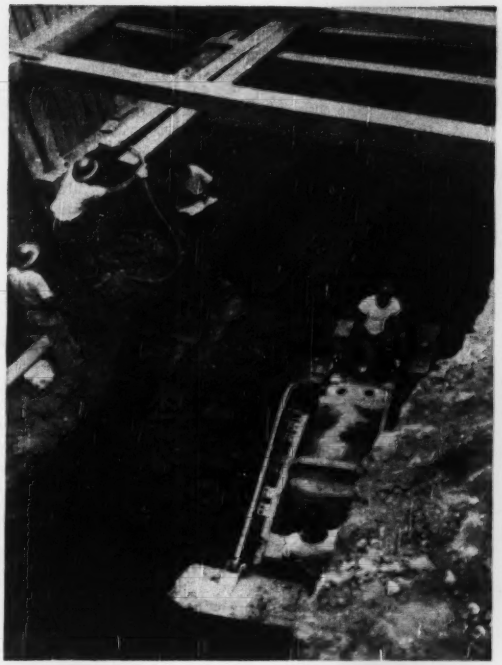
Starting at a connection with a previously built 17x13.6-ft sewer at Congress St. and Kilbourn Ave., the largest section of sewer runs north in Kilbourn to Wilcox Ave., with the next size extending on north to Kinzie St. The 12.0x9.6-ft sewer branches off at Wilcox and runs east under Wilcox, followed by the 680 ft of 8.5x8.5-ft sewer which extends to Pulaski Road.

• **Fast-moving job**—An average of 65 ft of the largest sewer is completed each day, in two 9-hr shifts. This is how they do it:

An 18-in. concrete saw makes two longitudinal cuts through the asphalt-topped concrete pavement, 12 ft each side of the center line of the street.

The old pavement is ripped up and loaded into dump trucks by a 1½-cu yd dragshovel. This rig also excavates to 2½-ft depth below street grade over the full 24-ft width of pavement opening. Initial excavation stops at this level to give sufficient clearance above the remaining street pavement for the rear end of the big dragshovel as it swings around to load dump trucks.

• **Digs to rough grade**—Working in



FRONT-END LOADER trims bottom of trench just ahead of sheeting. It pushes material within reach of dragshovel. Paul Brenston photo.

BIG DRAGSHOVEL digs 28 ft to rough grade from a 2½ ft deep trench prepared by a smaller dragshovel. Sheeting follows close behind.

the initial 24-ft wide by 2½-ft deep cut, the 2½-cu yd dragshovel follows along, excavating a trench 21 ft wide and to rough grade, leaving a 3x6-ft shelf along each side, at the bottom.

A small front-end loader down in the trench makes the final rough cut for the invert of the sewer; pushing the material up to within reach of the dragshovel. The job goes fast, with a minimum of final trimming by air spades being needed to prepare the bottom of the trench to receive the concrete invert. Sides of the trench are trimmed so smooth and so nearly vertical by the 2½-cu yd dragshovel that little hand trimming is required for the timber sheathing.

Excavated material is a clay-loam underlain with a compacted gumbo-like silt that gets progressively denser with the depth of cut. This material stands on a vertical plane when first excavated but much be sheathed and braced within a few hours to keep it from sloughing.

• **Staunch bracing system**—This tendency of the material to slough when exposed to air or moisture calls for a rugged system of trench bracing. The bracing system is made up of 3x8-in. vertical sheathing next to the banks of the open cut, extending from ground line to within 6 ft of the bottom of trench. The bottom 6 ft of trench is braced with horizontal 2x10-in. wales which are left in place between the invert slab and the earth banks.

There are 4 tiers of 8x8-in. cross-struts spaced 6 ft apart horizontally and about 6 ft vertically. They bear against longitudinal 6x8-in. wales which, in turn, hold the sheathing in place.

Trench jacks, at one end of each cross-strut, permit fast and easy installation of the bracing system, and exert sufficient transverse pressure against the sheathing to keep the trench from caving.

The bottom tier of struts is placed just above the top of the invert slab. The two bottom tiers are removed after invert is poured.

The third tier of struts is spotted to just clear the top of the forms for the arch of the sewer. With this arrangement, the two top tiers can be left in place until a length of sewer arch has been poured and hardened.

Cross-struts together with their longitudinal wales and the vertical sheathings are pulled out of the trench just before backfilling over the completed sewer. About one-half of the excavated material is needed for backfill; the remainder is hauled to spoil areas within a 5-mi. radius of the job.

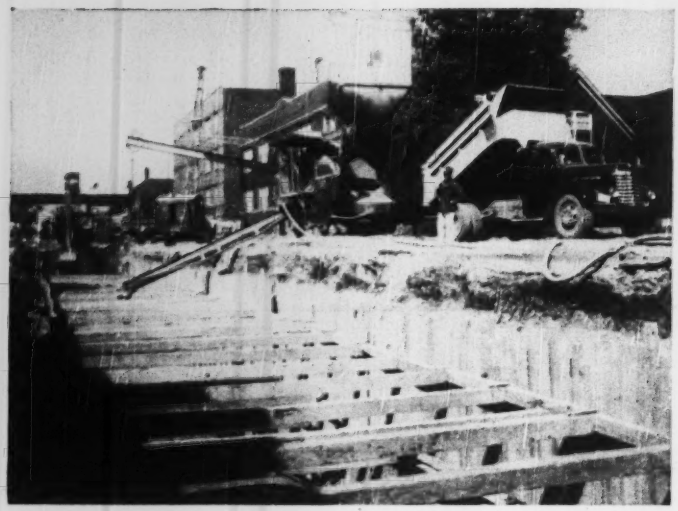
• **Two-block working area**—The entire job is scheduled to move along continuously within a two-block length of trench, from ripping of old pavement to backfilling of trench. This means blocking only two cross-streets at any one time.

Two one-way construction bridges are thrown across the sewer line for some of the heavily-traveled east-west streets. Some tunneling is necessary under the temporary construction bridges and surface line tracks.

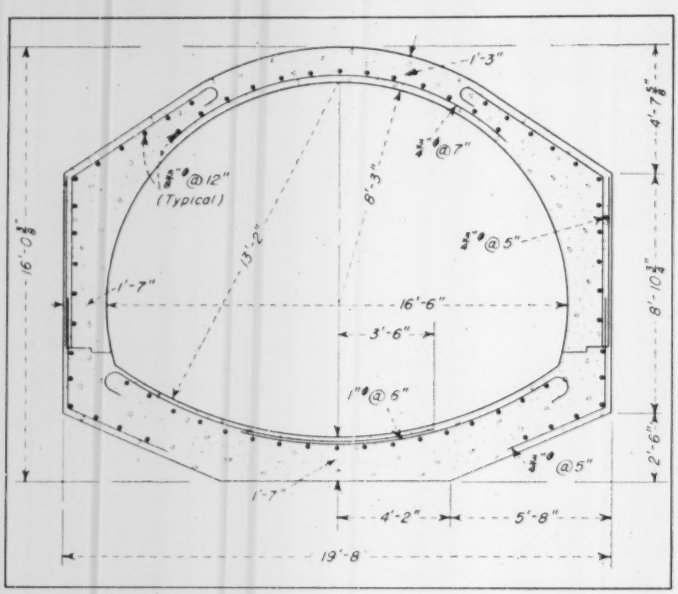
Working close behind the dragshovel, a small crawler crane sets the trench-bracing. This is followed by a 34E paver placing the concrete, then a second crane to remove the bracing and, finally, a bulldozer to backfill.

Consolidation of the backfill is by flooding the area from three longitudinal trenches—one above the center line of sewer and one each near the sides of the trenches. All compaction is done with the bulldozer. A second flooding and bulldozer compaction is made about three weeks after the initial compaction.

A gravel and binder street surface is placed over the completed sewer;



A 34-E PAVER places concrete in sewer through metal chute which discharges into a flexible elephant-trunk tremie to avoid segregation of materials.



LARGEST SIZE SEWER, 16.5x13.2 ft ID, requires a trench 21-ft wide and 28-ft deep below street level.

to be replaced with an asphalt-topped concrete pavement next year after the backfill material has settled.

• **Dragshovel sets the pace**—The 2½-cu yd dragshovel sets the pace for the job. It operates two 9-hr shifts per day, removing up to 1,500 cu yd of excavation in a good day's run. Other equipment is operated as necessary to keep the sewer-job on schedule.

In general the front shovel works 9 hr per day ripping up old pavement and excavating to 2½ ft below street grade. Form setters work about 9 hr per day; the concrete paver from 8 to 10 hr per day; form removal and cleaning up takes about 9 hr per day; and backfilling about the same length of time. Total daily crew, exclusive of furnishing concrete materials and hauling excavation, averages 150 men.

• **Placing the concrete**—Concrete from the paver is deposited in the trench through a 24-ft open chute, suspended from a boom on the paver. The chute discharges into an 8-in. flexible elephant-trunk which tremies the concrete into position and prevents segregation of materials. No air-entraining agent is used in the cement, but all concrete is vibrated.

The inside surface of the invert is struck off to grade with a curved screed traveling on guides hung from the cross-bracing. The remaining arch section is placed outside of telescopic steel forms that can be moved through each other. Arch sections are not poured for three days after completion of their respective invert sections.

• **Many service lines cut**—Building the big sewers is only part of the job. There are many catch basins and manhole structures on the job and a multitude of connections for domestic sewers, mostly 6-in. and 8-in.

As a two-block working area is opened up, existing domestic sewers are cut and temporarily flumed into teed connections of a 6-in. portable pipe which empties into a bulkheaded section of the completed sewer.

Permanent connections of domestic sewer lines to the new sewer are made following completion of the sewer. These vitrified clay tile connections are encased in concrete for stability.

Existing 1-in. domestic water lines are cut and spread apart to permit excavation; then carried across the excavation in flexible lead tubing which are buried in the backfill above the sewer as permanent lines.

• **Contractors and engineers**—M. J. Boyle & Co., Chicago, are the general contractors. The Material Service Corp. and Concrete Engineering Co. furnish the concrete materials and the reinforcing steel, respectively.

H. J. Boyle is president of M. J. Boyle & Co.; Rudolph J. Gross is general superintendent; Wm. Callahan and Tony Fitzpatrick are assistant construction superintendents; and Dick Gross is field engineer.

The project is being built by the Bureau of Sewers, Department of Public Works, Chicago. Oscar E. Hewitt is commissioner of public works; Thomas D. Garry, superintendent of the Bureau of Sewers; H. M. Forrey, chief engineer; A. J. Schafmayer, assistant chief engineer; T. S. Ford, chief engineer of sewer construction; Louis Spector, resident engineer; and Richard McNichols, mason inspector.

Pavement for New Jersey Turnpike designed for high axle loads

• Heavy truck traffic dictates unusual emphasis on stability, high load carrying capacity

AN AXLE LOAD of 36,000 lb—twice that of the recommended standard of the American Association of State Highway Officials—formed the basis for the design of pavements specified for New Jersey's 118-mile turnpike.

Alternate pavement designs have been prepared by the New Jersey Turnpike Authority's consultants, one surfaced with portland-cement concrete and one topped with asphaltic concrete. Each sets new standards in requirements for highway pavement thickness and in base and subgrade materials and preparation.

Bids are now being received on both types of pavement and the authority may let contracts for either or both types, depending on the price differential in the bids received. The Turnpike Authority does not consider it necessary to adopt one type throughout the turnpike, for it is believed that safety may be increased by providing some variety through changes in the type of paving, thus breaking the monotony that now is recognized as a hazard of driving long distances on highways built to modern standards.

• Heavy loads anticipated—Adoption of a high axle loading as a design standard is the outcome of New Jersey's peculiar position with respect to high concentrations of heavily loaded trucks. Also, it represents practical recognition of the fact that, despite efforts to control overloading, loads in excess of the state's liberal limits are frequent and can be expected to continue.

The state's present gross-load limits work out to an upper axle-load limit of 34,000 lb. Under a law passed this year this limit will be reduced to 22,500 lb at the end of a five-year grace period.

Checks made with loadometers on two highways carrying traffic similar to that anticipated for the turnpike gave results shown in the accompanying table. Without any increase in volume, these figures would indicate 170,000 repetitions of loads of 32,000 to 36,000 lb within a five-year period and a limited number of axle loads as high as 45,000 lb. The possibility of such high repetitions of loads in the 32,000-36,000-lb range led the consultants to recommend that pavements be designed to carry a 36,000-lb axle load without distress regardless of the number of repetitions.

• Designed for stability—Due to the ever increasing density of truck traffic on New Jersey's highways and the frequency of heavy loads, the state's highways have taken a pounding that has been the despair of the highway department's designers. That fact has caused the Turnpike Authority's staff to lay special emphasis on stability and high load-carrying capacity.

Planning for stability in the pavements, therefore, began with strict requirements for insuring the stability of ground over which the highway is to be built and equally stiff specifications for embankment and subgrade construction. One outcome is the sinking of thousands of vertical sand drains to speed the consolidation of the tidal flats over which fills are being built at both the southern and the northern ends of the turnpike (ENR July 21, 1949, p 42 and Sept. 14, 1950, p 36).

• Embankment construction—For shallow embankments, all sod and vegetable material must be removed and the area excavated to a depth of 4 ft below the top of the finished pavement. Where higher fills are required, the original ground surface, if suitable, must be compacted to 90% of maximum density at optimum moisture content to a depth of one-foot.

Where embankments are to be built over wet or unstable material of shallow depths not requiring sand drains, the muck is removed and fill containing not more than 10% of 200-mesh material must be placed by end dumping to an elevation slightly above water level. This must be done in such a manner that any remaining soft material is pushed aside.

AXLE LOADS ON NEW JERSEY HIGHWAYS

(Average annual loadings for a 24-hr period based on loadometer reading on State Routes 25 and 44)

Axle Loadings in pounds	Number of repetitions
20,000	1,471
24,000	520
28,000	175
32,000	94
36,000	5
40,000	5
44,000	5

Embankments are being built in layers not to exceed 6 in. of loose material, which is required to be distributed uniformly over the whole width of fill and pulverized to full depth by disking or otherwise before being then compacted to 90% of maximum density. Each layer must be moistened or dried to give the proper moisture content.

Compaction is being done with sheepsfoot rollers loaded to not less than 3,000 lb per linear foot of drum and not less than 500 lb per sq in. of footprint, or with pneumatic rollers weighing not less than 2,500 lb per foot of width and a load per tire of not less than 220 lb per inch of tire width.

Embankment, except where special subgrade or porous materials are specified, may be built of any stable material that can be compacted to the required density, and which must be free of ashes and muck or material that will decay. Material coming within the Bureau of Public Roads classifications of A6 or A7 may be used outside the vertical planes through the top of the embankment slopes.

• Special subgrade construction—The upper 28 in. of all fills is being built of special subgrade materials compacted to 95% of maximum density. The lower 12 in. of this material is classified as Grade B, and above it is 16 in. of Grade A material.

Specifications for Grade A are that it shall be pervious, free draining, frost resistant material, classified by the PRA as A3, having a plasticity index of not more than 3 and graded so that not more than 6% passes a 200-mesh sieve. Its rating under the California Bearing Ratio test shall not be less than 20% when compacted to 100% of maximum density.

Grade B also is required to be a frost resistant material with a plasticity index of not more than 6, which shall be graded so that not more than

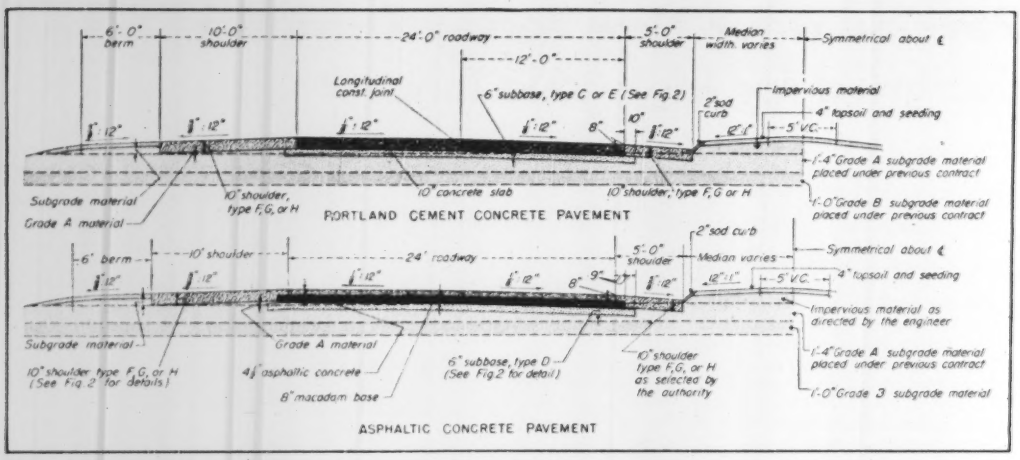


Fig. 1. TWO TYPES OF PAVEMENT have been specified for the New Jersey Turnpike. One is a 10-in. slab of portland-cement concrete on a 6-in. subbase. The other consists of a 4½-in. layer of asphaltic concrete over an 8-in. macadam base and a 6-in. subbase.

10% passes a 200-mesh sieve. Its CBR rating shall be not less than 15%.

A frost-resistant material is defined as being graded so that not more than 10% shall pass a 200-mesh sieve and not more than 5% of its particles shall be less than 0.02 millimeters in size.

• **Subgrades to be pretested**—Placing this 28 in. of special subgrade material is included in the grading contracts. Contracts for the paving are to include a "subbase," laid over the special subgrade material, also construction of the shoulders and the raised median zone that will separate opposing lanes of traffic.

Immediately before the subbase is placed the subgrade is to be subjected to four passes of rubber-tired rollers or construction equipment having a tire load of 25,000 lb or greater as a means for pretesting the subgrade. Prior to or during this pretesting the subgrade is to be watered or dried to keep it within two percentage points of optimum moisture content to a depth of one foot.

Any soft spots that are revealed by this rolling are to be reconstructed, dressed to proper grade, and rolled.

These refinements in preparation of the subgrade for the turnpike's pavement were called for by the engineering consultants to insure that the pavements would not be injured by frost and to prevent the development of "pumping" at the joints in concrete pavement.

• **Preparations for the pavement**—As a preliminary to the paving operations the paving contractor will be required to shape the surface of the special subgrade material to the levels required for placing the subbase and pavement, using the surplus under the shoulders and in the berm, as called for in the plans. Material moved in this reshaping must be recompacted to 95% of maximum density, and this compaction must not precede the construction of subbase or shoulders by more than 48 hours.

Three types of subbase, each 6 in. thick, have been set up in the specifications: Type D for use beneath the macadam base course for the asphaltic concrete pavement, and Type C or Type E for use under portland-cement concrete pavement at the option of the contractor.

The three types of subbase materials are defined as follows:

> Type C—(under the concrete pavement) Two courses, each consisting of compacted gravel, broken stone or broken slag, with the lower course containing a coarser grading than the upper.
>
> Type D—(under the macadam base for asphaltic pavement) Two courses, each consisting of compacted gravel, broken stone or broken slag, with each course having the same grading.
>
> Type E—(Alternate for use under concrete pavement) Two courses, the lower course consisting of compacted aggregates and the upper coarse being a road-mixed asphaltic layer.

Sizes specified for these aggregates are set forth in detail in the specifications. They range from 100% passing a 3-in. square sieve to less than 5% passing No. 200 for the lower course, and 100% passing 1½ in. to less than 6% passing No. 200 for the upper course. Bank run materials deficient in coarse sizes may be used if coarse aggregates to make up the deficiencies are added. There must be sufficient material passing the No. 4 sieve to completely fill the voids between the larger particles, and there must be sufficient fine material to bind, but no clay balls.

Subbase materials must be compacted to 95% of maximum density.

• **Macadam base course**—A macadam base course 8 in. thick is called for in specifications for the asphaltic concrete pavement. It is to consist of two 3-in. courses of waterbound macadam and a 2-in. top course of penetration macadam. Aggregate sizes for the waterbound macadam range from 100% passing the 3-in. sieve to 0-5% passing the 1-in. size. Top size for the penetration macadam is 2 in., with 0-5% passing ¾-in. and 0-2% passing the No. 200 screen. Screenings are all to be below the ¾-in. size.

The bituminous binder is to be 120-150 penetration asphalt cement meeting the M 20-42 requirements of the American Association of State Highway Officials. It is to be heated to 300 to 350 deg, depending on air temperatures, is to be applied at rates ranging from 1.60 to 1.80 gal per sq yd, and while still liquid is to be covered with clean chips just sufficient to fill surface voids. Then it is to be rolled until the chips are embedded.

• **Asphaltic concrete pavement**—An asphaltic concrete surface 4½ in. thick is called for, consisting of a 2½-in. leveling course hot laid on the macadam base and a 2-in. surfacing course. The coarse aggregate shall be

either broken trap rock, granite, gneiss, limestone or dolomite, meeting quality requirements set out in detail in the specifications.

Stone sizes for the leveling course range from 100% passing the 1-in. sieve and 50 to 70% passing the ⅜-in. sieve to 5 to 12% passing the No. 100 screen and not more than 1 to 5% passing the No. 200 screen. Top size for the surface course is the same but the amount passing the ⅜-in. sieve is raised to 60 to 80%. Lower limits are similar to those for the leveling course.

Asphalt cement is required to meet the AASHO specification M20-24 and to have a penetration of 85-100. By weight, it is to be 4.5 to 5.5% of the mix in the leveling course mix and 5.0 to 6.5% in the surface course. Asphalt is to be heated at the plant to the 225 to 325 deg range.

When compacted by the Marshall test procedure the mix is to have a density not less than 92 or more than 96% of the calculated density of a voidless mixture. When tested for stability by the Marshall test it shall show a flow of not more than 20.

• **Paving requirements**—Pavers used in laying these bituminous materials are to be capable of spreading and finishing in not less than 12 ft widths and in depths from ¾ in. to 6 in., true to line, crown and grade with or without side forms. A minimum of three rollers is called for: a three-wheel roller of not less than 10 tons weight and having a compression on the rear roller of not less than 330 lb per inch of tire width; a tandem roller of not less than 8 tons weight; and a three-axle "bump" roller. If the rate of laying rises above 125 tons per hour a fourth roller is required for the surface course, and if it is above 175 tons, four must be used on the leveling course and five for the surface course.

The surface of each finished course must be so free from waves or irregularities that when a 16-ft straightedge is laid parallel to centerline the surface of the leveling course shall not show a variation of more than ⅝ in. For the finishing course this variation is reduced to not more than ⅜-in.

The resulting pavement, surface, leveling course, macadam base and subbase will have a total thickness of 18½ in.

The consultants are of the opinion that the asphaltic concrete pavement they have specified will be more stable than the usual pavements of this type due to the slightly lower percentage of dust contained in the mix and the closer plant control called for to avoid use of an excessive amount of asphalt. They also believe that the pavement will resist the action of salt used to remove ice from the surface and will be safe against skidding.

• **Portland-cement concrete pavement**—As an alternate, the board of consultants specified a 10-in. thick portland-cement concrete pavement supported on a 6-in. subbase of crushed stone or gravel, all supported on a minimum of 20 in. of selected material.

An air-entrained concrete is specified, with the mix designed by the percentage-of-voids method. It must have a minimum cement content of six bags per cubic yard and in no case less than one half of the sand volume. The free water content shall not exceed 5.2 gal per bag of cement, and the slump must be within the limits of ¾ to 1½ in.

The consultants concluded that a richer mix will not be required for strength and would be undesirable due to its greater tendency to shrink or expand under changes in moisture content and temperature.

Specifications state that the "course aggregate shall be 1½-in. size, prepared at the batcher by mixing 1½-in. size and ¾ or ⅜-in. size. The ¾-in. size shall be prepared at the batcher or point of production by mixing 1-in. size and ⅜-in. size."

Central-mix concrete may not be used, and transit mix only for small parts of the work.

Reinforcing at a rate of 7.0 lb per sq yd of concrete for the control of cracking is specified. Transverse control joints are to be spaced 75 to 80 ft apart. They are to be provided with dowel bars or other load-transfer devices approved by the engineer "such that the total range of relative vertical movement of adjacent slab ends which the device will permit prior to positive engagement and development of load transfer shall not exceed 0.01 in."

The joint space between slabs must be ½-in. wide when constructed and may become at least ½ in. wider or narrower without having the load-transfer device develop a resistance to opening in excess of 500 lb per foot of joint. In addition, the resistance to an opening of the joint of 0.10 in. shall not exceed 200 lb. per foot of joint.

Longitudinal construction joints are to be of the keyway type.

Joint fillers may be of any kind of clear lumber dressed to a thickness of one-half inch and given a preservative treatment, except in the case of cedar or cypress.

Joint sealing fillers are to be of the hot-poured rubber compound type.

• **Three types of shoulders**—Unusual attention was given to the design of

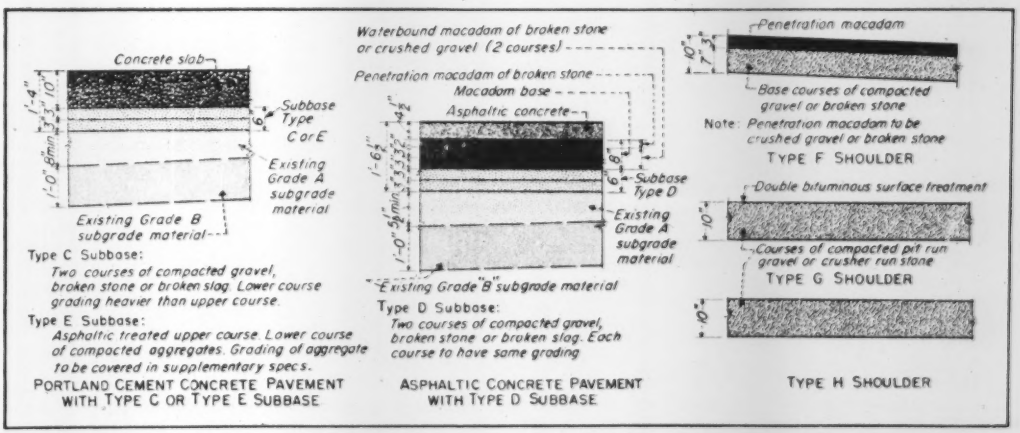

Concrete slab
Subbase Type C or E
Existing Grade A subgrade material
Existing Grade B subgrade material
Type C Subbase:
Two courses of compacted gravel, broken stone or broken slag. Lower course grading heavier than upper course.
Type E Subbase:
Asphaltic treated upper course. Lower course of compacted aggregates. Grading of aggregate to be covered in supplementary specs.
PORTLAND CEMENT CONCRETE PAVEMENT WITH TYPE C OR TYPE E SUBBASE
Waterbound macadam of broken stone or crushed gravel (2 courses)
Penetration macadam of broken stone
Macadam base
Asphaltic concrete
Subbase Type D
Existing Grade A subgrade material
Existing Grade "B" subgrade material
Type D Subbase:
Two courses of compacted gravel, broken stone or broken slag. Each course to have same grading
ASPHALTIC CONCRETE PAVEMENT WITH TYPE D SUBBASE
Penetration macadam
Base courses of compacted gravel or broken stone
Note: Penetration macadam to be crushed gravel or broken stone
TYPE F SHOULDER
Double bituminous surface treatment
Courses of compacted pit run gravel or crusher run stone
TYPE G SHOULDER
TYPE H SHOULDER

Fig. 2. **ALTERNATE SUBBASES** for the portland-cement concrete pavement and a single type for the asphaltic pavement have been set up in the specifications. One of the three types of shoulders here shown at right will be used.

the shoulders for this highway. Worthy of special note is inclusion of 5-ft wide paved shoulders on each side of the raised median zone, adjacent to the high-speed lanes. These shoulders were added because experience on other divided highways with raised median zones has shown that motorist will not drive close to the raised edge, thus cutting down the effective width of the lane.

The inner shoulders also are used to carry storm water to the drop inlets.

Outer shoulders are to be 10 ft wide flanked by a 6-ft wide earth berm to give ample space for disabled vehicles to get clear of traffic on the pavement.

Three types of shoulders were set up in the proposals, and bids are being asked on each type. This is being done to permit the Turnpike Authority to contract for the highest type its budget will permit. These three types are as follows:

Type F Shoulder—a thickness of 10 in. consisting of 7 in. base courses of compacted gravel or broken stone and a top 3 in. penetration macadam.

Type G Shoulder—Ten inches of compacted pit-run gravel or crusher-run stone with a double bituminous surface treatment.

Type H Shoulders—Ten inches of compacted pit-run gravel or crusher-run stone without any bituminous surfacing.

• **Competitive situation recognized**—Because of the highly competitive situation concerning the two types of paving under consideration for the turnpike, the chief engineer for the Turnpike Authority, Charles M. Noble, instructed the consultants to make certain that their design for each type would be adequate for the loading and yet would not be overdesigned. If either the portland-cement concrete paving or the asphaltic concrete was overdesigned the other type would be given a competitive price advantage, Mr. Noble said, that would be embarrassing to both the authority and the consultants.

The designs described in the foregoing are comparable, according to the consultants.

When the first bids on the pavement were opened on Oct. 18, the low bid on the asphaltic concrete pavement was $5.80 per sq yd and on portland-cement concrete was $8.05.

The authority is calling for bids this fall on the pavement for the several sections into which the turnpike has been divided for design and construction purposes in the expectation that all contracts can be let by Dec. 1, thus giving the contractors ample time to assemble materials and equipment for a fast start in the spring.

The committee that developed the pavement designs was made up of one representative each from seven of the eight firms or groups of firms that are acting as consulting engineers for the authority on the turnpike. The representatives were as follows:

O. J. Porter, chairman of the committee, representing Edwards & Kelcey, Frederick R. Harris, Inc., and O. J. Porter & Co.; Elmer K. Timby, vice chairman, representing Howard, Needles, Tammen & Bergendoff; John R. Dietz for Gannett Fleming Corddry & Carpenter, Inc.; Douglas R. Sayers for Parsons, Brinckerhoff Hall & Macdonald; J. K. Knoerle for J. E. Greiner Company; C. E. DeLeuw for DeLeuw Cather & Company; and W. L. Hyland for Fay, Spofford & Thorndike.

In discussions of the pavement designs the New Jersey Turnpike Authority was represented by W. W. Wanamaker, executive director, Charles M. Noble, chief engineer, William J. Delaney, assistant chief engineer and P. G. Dover, Paul L. Troast, is serving chairman of the authority.

Army seeks new types of landing mats for airfields

Two new types of plastic landing mats, to be used by U. S. forces in making military airfields, are under investigation at the Army Engineer Research and Development laboratories at Fort Belvoir, Va.

If current research results in a suitable procurement type design, the plastic sections may replace the familiar "pierced plank" steel section runway paving.

The search for a portable airfield surfacing material has gone on unchecked since the early days of World War II. In the quest, a number of unorthodox materials and joining methods have been tried.

Pierced steel plank (or PSP, as it is familiarly called) was the mainstay of portable surfacing used in Europe. PSP is easy to place, needs no special tools. It is easy on tires, easy to manufacture and easy to maintain. The Army engineers (whose job it is to develop landing surfaces) and the Air Force (whose planes and pilots must use it) both like PSP. It's the most reliable of all standard portable surfacings the U. S. has today.

An aluminum version of PSP, (portable aluminum plank, or PAP) is also being used, but its service life of 6 months (against 1 year for PSP) makes its use limited to cases where air transportability is the prime issue.

The engineers have also worked with square mesh track, (SMT) a 3x3-inch 5-gage steel-wire fuse-welded mesh. It has a number of disadvantages: Short life, does not prevent forming of ruts, and requires special tools to unroll and straighten it.

Because of the critical nature of metals, ERDL is also interested in prefabricated bituminous surfacing (PBS). PBS was invented by the Canadians and developed by the British. It consists of a layer of burlap or hessian cloth and a layer of paper felt. An asphaltic compound binds these two together.

• **Plastics tried**—Since aluminum and magnesium are both critical (and expensive) materials, ERDL engineers are putting their main effort on the sectional plastic mats.

The first one, a honeycomb sandwich type, is made of 8-ounce cotton duck, impregnated with plastic, sandwiched in between ¼ inch cover plates. These plates are made of alternate layers of woven glass cloth and glass mat. The plates are also impregnated with plastic.

Engineers are now trying to find ways of overcoming its two disadvantages—a slippery surface, and lack of suitable fasteners.

While the experimental sandwich type has been made in 2 x 12 ft sheets (12 inches thick) the second type would probably come in 3 x 12 sections, only an inch thick.

• **Built up section**—This second type, known as a "built-up plastic" mat, requires the use of a minimum of two layers. One fastens to the other with a 50% stagger in both directions. A special fastening device clamps the two layers together. Engineers think two layers will hold as much as 80,000 pounds. More layers can be added to hold more weight. Thus, over a bad subgrade, or to hold up even a B-36, more layers could be put down.

ERDL engineers have a proposed flexible type of plastic surfacing about which they say little. It is known, however, that it is a plastic coated fabric that is cemented together with latex when placed. It is several times as strong as the British-Canadian PBS. It will not spoil in storage, and the seal is not affected by temperature or moisture. One officer said that "it may be several years before this new material becomes a reality."

HUNTSVILLE—Avenue K. Built in 1920. Photos taken in 1928 and 1950.

GALVESTON—Broadway at 28th Street. Built in 1914. Photos taken in 1924 and 1950.

Here today—*and still here tomorrow* that's the story of Texas' *Concrete Streets*

MOST Texans are fiercely proud of their state. One asset they can cherish is old concrete pavements like those shown here. Many of these roads and streets have rendered uninterrupted, ***low-annual-cost*** service for more than 25 years.

Texas, however, is not the only state that can be proud of the long, economical service of its concrete pavements. Such service is typical all over the country. Engineers and civic officials have learned that when they specify concrete they give motorists the best pavement buy because:

1. IT IS ECONOMICAL. For all but lighter traffic concrete usually costs less to build than other pavements of equal load-carrying capacity. It costs less to maintain and it lasts longer. That adds up to real ***low annual cost.***

2. IT IS SAFER. Wet or dry, concrete's gritty texture has uniformly high skid resistance. At night its high light reflectance provides unexcelled visibility.

For more information about economical, durable concrete pavement send for your free copy of *"Concrete for Modern Streets."* Distributed only in the United States and Canada.

SAN ANTONIO—Weymouth Street. Built in 1916. Photos taken in 1923 and 1950.

PORTLAND CEMENT ASSOCIATION

Dept. 11d-17, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

TURBULENCE and unequal distribution of air in the aeration tanks was caused by . . .

DETERIORATION of grout that held diffuser plates on air channels. Auxiliary perforated pipe didn't help much.

Clean tubular air diffusers mean uniform sewage-aeration at low cost

• Out in Columbus, Ohio, Superintendent James H. Blodgett has been struggling for three years to bring his sewage plant up to adequate capacity and acceptable treatment standards during construction of new and enlarged facilities. With the work nearly complete, he's learning about the advantages and quirks of his new treatment devices. Blodgett has picked up a few ideas on getting maximum performance out of air diffusers for activated-sludge processing. Here he tells how air diffusers are kept clean and what it costs to do so.

INSTALLATION of tubular diffusers—to replace fixed-plate units in the aeration tanks of the Columbus (Ohio) activated-sludge plant—is paying off. But the units must be cleaned regularly to get maximum aerating effectiveness.

Immediate benefits—following installation—included: Lower pressure on the air blowers, more uniform distribution of diffused air, and maintenance of good aerobic conditions at a flow-rate 20% in excess of the design capacity.

The aeration tanks were loaded up to 60 mgd for a four-month period without difficulties in operation. The design rate of flow is only 50 mgd. It's interesting to note that this performance was achieved with only one-half of the plant's primary-settling capacity in use.

• **Type of tubes**—The stainless-steel diffusers are cylindrical and wound closely with a cord that is resistant to chemical and bacteriological action. Air passes outward from the tube, between the cords and into the sewage.

The diffusers are located in banks along the Y-shape wall that divides the aerating tanks into two passes. Banks of diffusers can be raised over the walkway for cleaning, repair and replacement. Power is by an air-operated motor, the air being taken directly from the aeration supply lines (see photographs).

• **Clogging**—During construction operations, it was necessary to shut down the aerators for an extended period. When they were put back into service, the air-main pressure had increased by about 1.5 lb. Investigation showed that the diffusers were coated with a dun-colored clay-like material, which dried quickly on exposure to air. Dry brushing of tubes helped somewhat but pressures soon built up again.

Chemical analysis of the coating revealed 90% silica. This was a clue to the trouble. The abandoned channels for the fixed-plate diffusers had been filled with sand to prevent collection and decomposition of organic material in them. This was done so that an extra load would not be placed on the aerators. But the organic matter and sand combined to clog the diffusers.

The aeration tanks were then drained. Sand was found everywhere but in the channels. This proved that organics would not accumulate in the channels. All of the sand was, therefore, removed from the tanks.

REPLACEMENT of the fixed-diffuser plates and perforated pipe by batteries of late-model tubular diffusers results in . . .

UNIFORM APPLICATION of air to the sewage flowing through aeration units, 25% increase in treatment capacity.

• **Cleaning tubes**—After considerable experiment, it was found that the silica coating could be removed by soaking and jetting. Diffusers were soaked for 12 hr in a 3% solution of sodium silicate plus a non-ionic detergent. Then they were passed through a high-pressure water jet. The jet completely removed softened material, even from between the cords.

Some tubes, stained with iron compounds, were immersed in a 10% hydrochloric-acid solution for about 30 sec. After the jet washing, they came out clean. Only about 10% of the tubes were acid-treated.

The aeration tanks contain 6,400 diffusers, all of which were cleaned in batches of 200.

• **Testing the tubes**—Two out of every 100 tubes were selected at random and tested for head loss at a rate of 5-cfm of air. Tested tubes were required to come within one-inch of water pressure of the standard loss set up for new tubes. If this requirement was not met, the whole batch of tubes was soaked and jetted again.

This test, among other things, gave an indication of the strength of soaking solution, and when it needed renewing. Three batches, or 600 tubes, was the limit of the soaking solution.

A system for recirculating the solution in soaking tanks has recently been installed. It cuts soaking time 25% and extends use of the solution to four batches. In addition, an improved type of jet—that flushes the inside as well as the outside of the tubes—is proving satisfactory.

• **In-place jetting**—During aeration, it has been found that the air-pressure loss builds up gradually over a six-month period. A sustained increase of about 0.75 lb indicates tube clogging.

TUBULAR DIFFUSERS are cleaned by soaking in 3% solution of sodium silicate and non-ionic detergent for 12 hr (left). Superintendent Blodgett is removing a tube from the foot-operated device that cleans the inside as well as the outside. Banks of diffusers in raised position are cleaned with a high-pressure ring-like water jet (right).

When this value is reached, the batteries of tubes are raised and the bacterial-jelly coating is removed by "jetting" in place.

The jet utilizes high-pressure water delivered through a ring with perforations on the inside (see photo). Passed over each tube separately, this jet effectively removes the jelly-like coating. Air pressure is left on while tubes are jet-cleaned.

Jetting-in-place is decidedly beneficial. It reduces pressure losses as much as 0.5 lb.

This method of cleaning, however, does not give the tubes the same rating they had when new. It is estimated that every two or three years the tubes should be removed from the tanks, soaked in the softening solution, and jet cleaned. This returns them to new tube performance.

• **Cleaning costs**—Data collected in the first attempts at removing, soaking and jetting the tubes shows that it costs about 10¢ apiece to return them to new performance. The method was crude and it can undoubtedly be improved upon.

To raise and partially clean the diffuser tubes by jetting-in-place costs about 2¢ apiece.

Assuming that the tubes must be removed, soaked, jetted and replaced once every two years and the diffuser units must be raised and cleaned twice a year, cost to maintain reasonable operating qualities will be: $.10/2 + .02 \times 2 = 9¢$ a tube per year.

• **To compare results**—Air flow and pressure losses at various points in the air system are being taken at regular intervals. These will be used to establish rate of build up of pressure losses. Also they will show where the build-up is fastest. A study of the collected data will permit establishment of a regular schedule of diffuser-tube cleaning.

Operating data on the new aerating system is being assembled. By early 1951, it is hoped that sufficient reliable information will be available to permit a comparison with the old fixed-plate diffuser system.

The tubular diffusers were manufactured by the Chicago Pump Co., Chicago. They are wound with Saran cord.

FACTS ABOUT THE SEWAGE PLANT

Partial operation of the Columbus treatment plant was started in Nov., 1937. The activated-sludge section including the aerators were put into operation in Aug., 1938.

The eight aerators are two-pass conventional Y-wall tanks with 26-ft width and 15-ft water depth. Each pass is 370 ft long. Detention period at 50 mgd with 30% returned sludge is computed at 6 hr.

Air supply is by four three-stage centrifugal blowers. Capacities of two pairs of blowers are 21,000 and 15,000 cfm, each at 7.3-lb. discharge pressure with a 60-deg F air temperature.

Air is filtered by oil-immersion screens and dry-paper filter packs on the suction side of the blowers.

Diffusion media in the aeration tanks were 12-in. square carborundum plates one-inch thick having a permeability rating of 40-45. The plates, arranged in two rows and four cross diffusers in each tank-bay, totalled 1,328 per tank. Grouted in place in precast-concrete containers, the plates were supplied by an air main in the trough of the tank division-wall, with lateral risers to the diffuser on the tank bottom.

Operation of the air-supply system was quite satisfactory and efficient for the first five years of operations. But from 1943 on—concentrated areas of turbulence on the surface of the tank's liquid increased in number and intensity. This seriously impeded proper distribution of air in the tanks and caused almost insurmountable operating difficulty.

The turbulence resulted from deterioration of the grout that held the plate diffusers in place, thus allowing the plate to be dislodged or the air to escape around its edges.

California builds its first prestressed concrete bridge

Attracted by potential economies and other advantages of prestressed concrete, the California Division of Highways has let a contract for a bridge to be constructed with this technique.

Design and method of construction to be used was described by Leonard C. Hollister, engineer of design for the Bridge Department, at the 1950 Annual Convention of the Structural Engineers Association of California.

Since both design and construction experience had to be developed, Mr. Hollister said, it was decided that the first few jobs would be considered experimental and would be on not too large a scale.

• **Footbridge chosen**—For its first prestressed structure, the department chose a pedestrian bridge across the Arroyo Seco in the Los Angeles area. Simply supported, the structure spans 110 ft and provides for an 8-ft walkway with a live load of 55 psf. It consists of two 10-in. wide by 5-ft 8-in. deep girders, with a 1-ft 8-in. wide, 9-in. thick top flange. Girders extend 4 ft above the 5-in. thick walkway slab to serve also as a guard rail.

Each girder will be prestressed with 136 wires of 0.2-in. dia tensioned to 120,000 psi. Prestress will be applied by a method patented by the Prestressed Concrete Corp. of Kansas City, Mo., in which five wires will be stretched at a time.

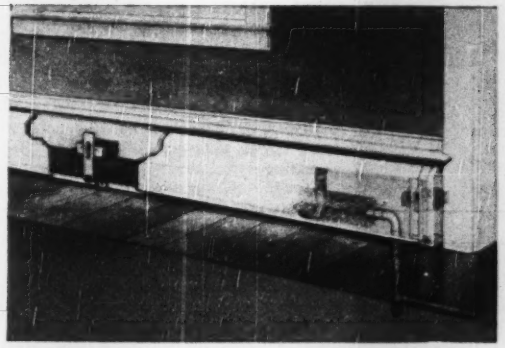
The five wires will be threaded through a 1x4-in. by 3½-in. deep steel stressing block; ⅜-in. washers will be slipped over them; and a button head will be peaned onto the end of each wire. This fastening is expected not to creep more than ¼-in. at 150% of design load.

The wires, inserted in metal sheaths to prevent bond with the concrete, will then be placed in the girder forms and concrete poured. After the concrete reaches its full strength of 5,000 psi in 28 days, 6½x20-in. by 3-in. deep steel stressing blocks will be jacked one at a time. After all wires have been prestressed, space around them will be pressure grouted through 1-in. holes in the jacking blocks.

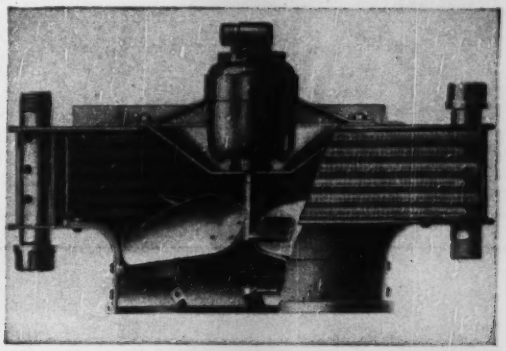
• **Precast girders**—The 50-ton girders will be precast at the site, and lifted into place. This method of erection will save the cost of formwork and permit construction of girders during winter months at a time when the flood-control district will not permit falsework in the Arroyo Seco channel.

Designed for a concrete strength in compression of 1,700 psi and a working stress in the steel of 102,000 psi, allowing for plastic flow and shrinkage, the prestressed girders will contain 50 cu yd of concrete and 7,000 lb of steel, as compared with 88 cu yd of concrete and 40,000 lb of steel that would be required for a conventional reinforced concrete bridge. Also, abutments are lighter and ramps smaller.

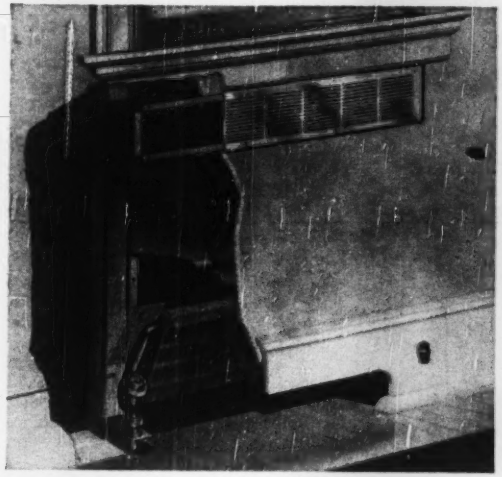
The contractor bid $5,000 for prestressing. Of four bids received for construction of the bridge, lowest was $23,770. Walter Kaucher of Los Angeles was low bidder.



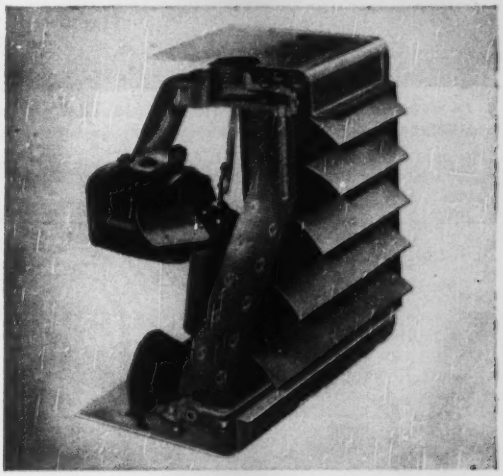
1. BASEBOARD HEATING—Finned tubes are placed behind a shield, which substitutes for the usual baseboard.



2. VERTICAL-FAN UNIT HEATER—Propeller draws air through heating coils arranged around the edges.



3. CONCEALED CONVECTOR—Chimney effect of the casing draws air over extended-surface heating coils.



4. HORIZONTAL-FAN UNIT HEATER—Fan blows air through coils heated by steam or hot water.

Heating equipment for buildings

J. C. McCabe
Associate Editor, Power
New York, N. Y.

DETERMINATION of the method to be used for heating a new building is an important phase in the initial planning. Where the heat source is to be located and how the heat is to be transmitted from source to point of use affects building-space allotment and, to some extent, wall or window locations ("Heating Systems for Buildings," ENR Nov. 9, p 42).

Equally important is the selection of the proper heat-transfer element for the point of use. Here, in brief, are the chief characteristics affecting the choice of equipment in common use:

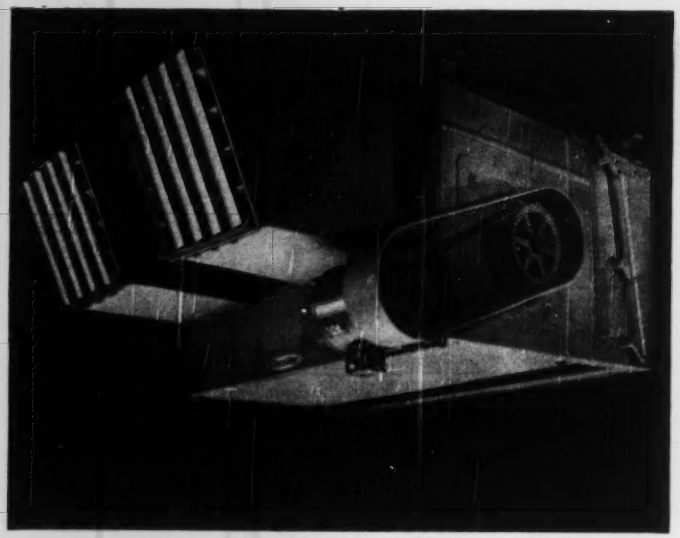
Radiators consist of metal tubes through which steam or hot water is passed, raising the temperature to a high level. Some air, to be sure, is heated directly and circulates through the room in true convection-heating fashion, raising room temperature somewhat in this way, but more than half of the heating is accomplished by radiation.

When a unit is designed primarily for convection transfer, with radiation incidental, it is called a convector. The dividing line is not precise and the terms radiator and convector generally are loosely applied.

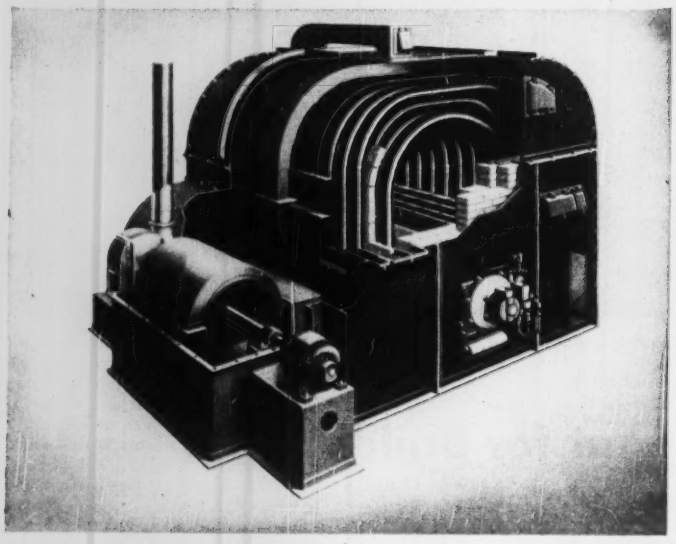
• **Heating elements**—Modern radiators are smaller and less conspicuous than older styles but serve the same purpose. Their output is expressed in thousands of Btu per hr (mbh) or in square feet of equivalent direct radiation (edr). For steam, a square foot of edr will emit 240 Btu per hr with 215 F steam temperature and 70 F room air. Comparable figure for hot water is 180 Btu.

The old-type free-standing radiator is rarely seen in new large buildings. Wall radiators of a new type are frequently found, however, in industrial buildings, supplanting the once-common wall-mounted pipe coil.

The new radiators make use of ex-



5. CENTRIFUGAL-FAN UNIT HEATER—Mounted on ceilings (like this one) or on floors or walls, these units meet requirements for large outputs.



6. SEPARATELY FIRED HEATER—This steel-encased unit can burn gas, oil or coal. It delivers up to 6,000,000 Btu per hr to ductwork.

tended surfaces, such as those provided by thin metal fins, for more efficient heat emission. They may be made of cast iron or cast aluminum, or fabricated of steel or nonferrous metals. They are generally placed near the floor, because when wall radiators are placed near the ceiling, horizontally, heat emission falls off from 5 to 10%.

Baseboard heating is a fairly recent entry in the office heating field. The heating surface resembles conventional baseboards in appearance and replaces them on exposed walls. The baseboard heaters may be hollow cast-iron panels, sometimes finned, or extended-surface tubing behind a metal enclosure (Fig 1). These units distribute heat close to the floor and blanket wall areas with warm air, achieving fairly uniform temperatures from floor to ceiling.

Convectors (Fig 3), which rely on air movement to warm up a room, have a heat-transfer surface—usually non-ferrous tubes with extended fins—placed low in an enclosed or shielded casting. Drawing cold air, which is at floor level, over the heating surface to reduce the temperature differential between floor and ceiling, the casing acts like a chimney, increasing the draft on air passing through. Convector output may be adjusted by throttling the supply valve (depending on the piping system) or by dampers.

• **Panel heating**—While most types of heating surfaces throw off heat by radiation, the areas of these surfaces are so small in relation to the area being heated that the effect is highly localized. Radiant or panel-heating systems, in contrast, have large radiant areas, and air heating is secondary.

The heating area may be a panel made of metal plates heated by steam or hot water pipes; or a panel of tapestry, special rubber or metal heated by electricity. Sometimes, floors or ceilings are heated by warm air passing through shallow ducts between joists. But most frequently, panel heating is achieved with hot-water or steam pipe coils embedded in walls, floors or ceilings.

Pipe for radiant heating generally is small-diameter, ½ or ¾-in., and of a corrosion-resistant metal, such as wrought iron or copper. Because low temperatures—from 85 F for floor panels to 120 F for ceilings—are necessary for comfort and to prevent cracking of concrete or plaster, hot water usually is the favored choice ("Radiant Heating Quiz," ENR Sept. 2, 1948, p83).

Just where radiant-heating should be located—in walls, floors or ceilings—is still unsettled. Floors obviously have definite limitations, because the temperature must be kept comparatively low for comfort. Ceiling-mounted panels have the advantage of higher heat output, but planning for the necessary heating area is complicated by recessed lighting, trick ceiling effects and sprinkler systems. Wall installations are economical but may be an obstacle when alterations to the building are needed.

• **Unit heaters**—Warm-air heating systems most commonly used in large buildings employ air heated at a central point by steam or hot-water "blast coils" mounted in ducts or standing alone as unit heaters. Blast coils are usually of extended-surface design; the steam or water-bearing tubes are round, with a secondary, or extended, surface made up of spiral, flat, crinkled, or corrugated metal. Associated with each blast coil is a central fan

assembly to force air through the ducts. Steam piping to these units may be run through the upper part of a plant and not add to the congestion at the production level.

The unit-heater system of warm-air heating is much more flexible. Not only does it have the piping and mounting advantages of blast coils, but also positive air circulation and uniform space heating.

In essence, the unit heater is a blast coil, combined with its own fan and equipped with readily adjustable air discharge outlets called diffusers or deflectors. The heater may be horizontal (Fig 4) or vertical (Fig 2), depending on the direction of air flow and the relation of fan to heating surface.

Unit heaters can be classified also according to output: Propeller fan units (Fig 2 and 4) have outputs of about 15,000 to 500,000 Btu per hr at air volumes ranging from 300 to 500 cfm. Centrifugal-fan designs (Fig 5) can develop up to about 2,000,000 Btu per hr and deliver volumes over 10,000 cfm. They are valuable where large areas must be heated with relatively few units.

Still another class is the separately fired unit heater. It serves in many buildings where central steam, hot water or air heating are either not available or uneconomical. Units range in size from the small gas-fired propeller fan types to large centrifugal blowers (Fig 6) of 400,000 to several million Btu per hr.

It is obvious that some types of heat-transfer equipment are more advantageous than others in meeting the heating requirements of a particular building. In addition, the building designer and the heating engineer must work together in selecting the equipment that is most suitable for architectural and structural purposes. There is no general solution; the equipment that best suits the needs of the building should be chosen.

Notes on legal decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill)

Fees for architect's services

An architect entered into a contract with the owner of certain real property, to prepare plans and specifications for a building to be erected on said premises. He was also to supervise the erection of the building.

The contract provided that the architect was to receive as compensation for said services six percent of the cost of the building. Seventy-five percent of this fee was to be paid upon the completion of the plans and specifications and the balance of the fee was to be paid as the building was erected.

After the architect had prepared preliminary plans he obtained a bid of about $45,000 as the cost of erecting the building. This information was given to the owner who directed the architect to proceed with the work of completing the plans and specifications and to obtain bids for the erection of the building. The architect completed the plans and specifications and then obtained bids for doing the work. Although the low bid was around $42,000—about $3,000 below the figure originally given as the approximate cost of the building—the owner refused to proceed with the work and refused to pay the architect for the services rendered by him.

The owner sought to avoid payment for the architect's services by claiming that he was never told that the structure would cost around $45,000; and since he did not go ahead with the project the architect was not entitled to payment for his services. One of the principal cases[2] relied upon by the owner to sustain his position was a case where the architect had been employed to prepare plans for a structure the cost of which was not to exceed $50,000 and the owner did not proceed with the erection of the building because the lowest bid received for the work was $69,000.

The court accepted the architect's version of the transaction and allowed him a recovery based on 75% of 6% of the low bid.

(1) Fuhrmann v Catanese, 44So. 2d 220.
(2) McDonnell v Dreyfous, 81 So. 383.

Satisfaction of architects

A plumbing subcontract provided that the work was to be done in accordance with certain specifications and to the satisfaction of the architect. The specifications did not provide that the fixtures to be installed were to be of any particular make. Although the subcontractor had advised the architect that he intended to use fixtures made by a certain manufacturer, the architect could not arbitrarily condemn the use of fixtures made by another concern, where they were of equally good quality as those that he had previously informed the architect that he intended to use.[1]

While in certain cases where one agrees to do something to the satisfaction of the other party, no recovery can be had unless the other party is satisfied. This principle applies, however, only when a question of personal fancy or taste are involved. The court in the case here being discussed held that the providing and installation of plumbing fixtures did not involve the furnishing of anything particularly fanciful, and that under the contract the contractor was only required to furnish equipment that would "be sanitary, useful, suitable and neat." If the fixtures furnished by him complied with these provisions of the contract, the architect was not justified in rejecting them just because they were not made by a particular manufacturer.

(1) Midgley v Campbell Building Co., 38 Utah 293, 112 P. 820.

Adjustment of contract price

A subcontract for the doing of excavation work provided that if any change in the work caused a material increase or decrease in its cost, an adjustment in writing would be made as to the amount to be paid the subcontractor.

After the work had been under way for some time the general contractor directed the subcontractor to shift from the pit he was working to another pit several hundred feet away, which change lessened the cost of the work being done.

The general contractor continued to make the usual periodic payments to the subcontractor without any complaint or suggestion of a possible lowering of the contract price for doing the work. After the work was completed but before the subcontractor was paid in full, the general contractor, for the first time, asserted the right to a reduction of the contract price because the change in the work resulted in a reduction of the cost of doing it. As no written adjustment had been agreed to at the time of the change, the subcontractor brought action to recover the balance allegedly due him at the prices set forth in the subcontract.

The court allowed the subcontractor a recovery, holding that the conduct of the parties during the performance of the work indicated that both parties to the contract, at the time the change was made, did not consider that the substitution of the second pit for the first one, constituted a material change in the contract.[1]

(1) Commonwealth v Henry W. Horst Co., 72 A.2d 121, Supreme Court of Pennsylvania.

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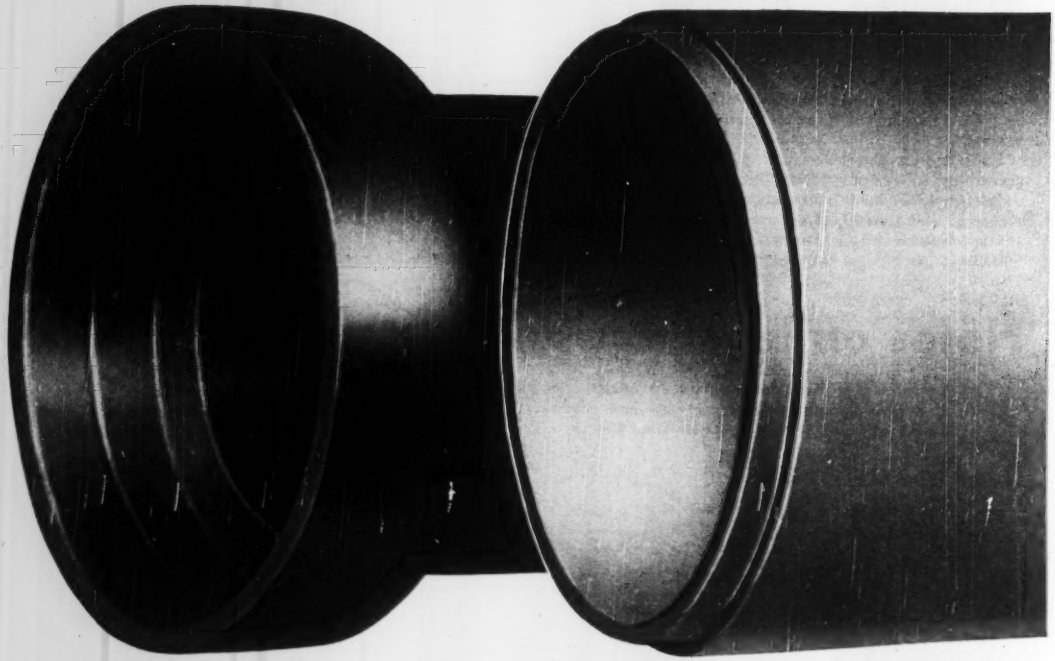

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READER COMMENT

Public relations? Yes!

Sir: Your editorial of November 2nd, entitled "Public Relations or Publicity?" covered a subject dear to our hearts. We agree enthusiastically with you, and like you at ENGINEERING NEWS-RECORD, we feel also that we are peculiarly qualified to speak!

As a public relations practitioner who has worked in the building industry over a ten-year period, I am heartened over the public relations awareness that seems to be permeating the industry generally. Great strides have been made, especially since the end of the war, and I am confident that ENGINEERING NEWS-RECORD has been a guiding force in the right direction.

As you point out in your editorial, there are still certain areas which do not appreciate fully the public relations function. This is unfortunate indeed, for I don't believe there's an industry which has a better story to tell than the building industry.

HAROLD BURSON
New York 17, N. Y.

Cone-penetration tested

Sir: In a letter concerning cone-penetration tests published under "Reader Comment" on p. 48 of ENR, Oct. 26, 1950, F. C. de Nie of Utrecht, Holland, makes the following statement: ". . . when this method is given a fair trial in America, it will justify its use as well as it did in our country."

A series of penetration tests with the Delft type of cone was performed in 1948-49 in the United States by Sprague & Henwood, Inc. of Scranton, Penna., under the writer's supervision. Records of the results and their discussion are included in the writer's book SOIL MECHANICS, FOUNDATIONS & EARTH STRUCTURES at present in press with the McGraw-Hill Book Co. The tests indicated that the Delft cone performed satisfactorily under soil conditions similar to those encountered in Holland, that is, when resisting layers had to be reached through overlying softer layers. However, the Delft cone failed to penetrate crusts of stiffer material and in this respect was found to be inferior to drop penetration testing by means of the "dry" (disturbed) sampling spoon (Sprague & Henwood 1290S) which spoon is representative of the types frequently employed for that purpose in the United States. It was nevertheless concluded that the Delft cone could serve in this country—in some cases—as a useful auxiliary tool.

Sprague & Henwood thereupon continued negotiations with the Dutch patent holders for the commercial production and use of this type of cone in America. It is my understanding that Sprague & Henwood accepted all the business proposals of the Dutch patent holders except one, which they rightly considered impracticable, namely, the proposal that the right to interpret the Delft cone test results be restricted in the entire United States to one individual or organization.

The writer declined a tentative suggestion that he undertake such restricted interpretations mainly because this would have been contrary to customary standards of American professional practice.

I understand that Sprague & Henwood have received no reply to the registered letter of acceptance of all Dutch terms—with this one exception—which they sent to Holland nine months ago, nor to subsequent reminders.

Thus, if cone-penetration tests of the Delft type are not yet used in the United States, this is not due to lack of efforts or of a spirit of cooperation and good will on this side of the Atlantic.

GREGORY P. TSCHEBOTARIOFF
Assoc. Prof. of Civil Engineering
Princeton University
Princeton, N. J.

Colored glass-disk standards

Sir: In the article, "Design and Operation of Outdoor Swimming Pools," published in the Aug. 17 issue of ENR under the section "Testing for Chlorine (p 43) this statement is made: "Colored glass-disk standards are preferable to colored solutions, which lose color, particularly in sunlight." Since Taylor color standards are liquid standards such a statement is of particular interest to us.

We have been making chlorine-testing equipment for about twenty years and in that period we have sold a good many thousand testing sets. Complaints due to fading of chlorine standards are practically nil. In fact all Taylor standards carry an unlimited guarantee against fading which means that if, for any reason, they should change they are replaced free of charge. This is certainly sufficient evidence that our standards are permanent.

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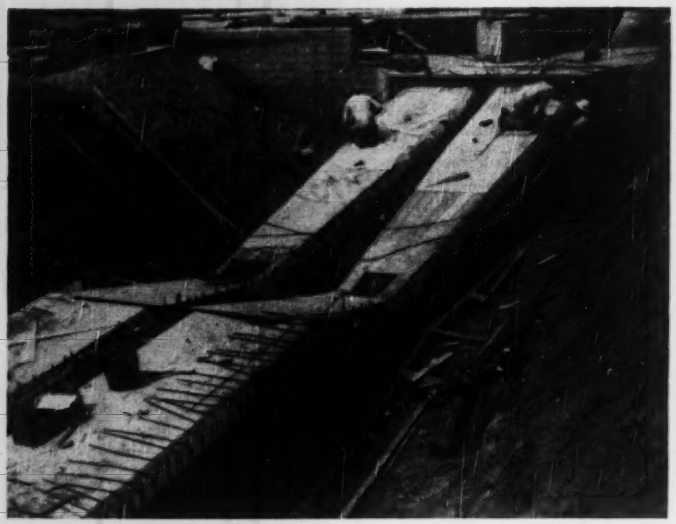


THESE VENTURIS will measure flows of from 20 to 100 mgd each. Throat is rounded and has 6-in. fillets built into the corners to smooth flow.

Parallel reinforced concrete venturi tubes gage sewage flow entering treatment plant

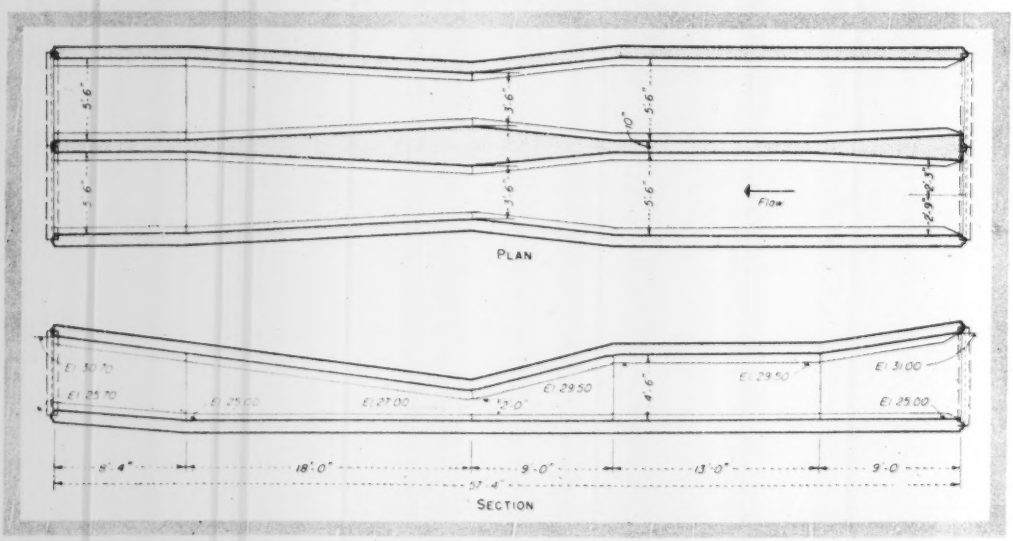
Parallel venturi tubes of reinforced concrete are used to measure sewage flow entering the main portion of the new Portland, Ore., sewage treatment plant. This is in place of metal venturi tubes or other flow-measuring devices that are normally used.

The main units of the new treatment plant are divided into two identical sections. Under average conditions, each section is capable of handling the entire flow. However, under normal operating conditions, it is believed that the flow will be split evenly between the two portions of the plant. The venturis are situated to measure the flow to each of these two sections as a check on how the flow is divided.

Each venturi tapers from a $5\frac{1}{4}$x$4\frac{1}{2}$-ft section down to a $3\frac{1}{2}$x2-ft section; this taper takes place through a 9-ft length. Piezometer taps are located in the tapered section $\frac{1}{2}$ ft from each end. After the narrow throat the section expands to its original shape through an 18-ft length.

Use of concrete is intended to reduce cost of the flow-measuring facilities in the Portland plant. Since the construction of the venturis is part of a general contract for the whole plant, no exact cost figures are available. However, the engineers believe the desired result is being achieved.

The Portland sewerage project is being conducted under direction of a board of engineers including Ben S. Morrow, John W. Cunningham, and J. C. Stevens.



FORMS for reinforced concrete venturi conduits are installed at the Portland, Ore., sewage treatment plant. Used in place of metal venturi tubes or other flow-measuring devices, the concrete conduits are expected to produce a lower-cost measuring method.

STANDARD ENGINEER'S REPORT

DATA

PRODUCT Chevron Starting Fluid

UNITS A.C. diesel engines HD-7 tractors

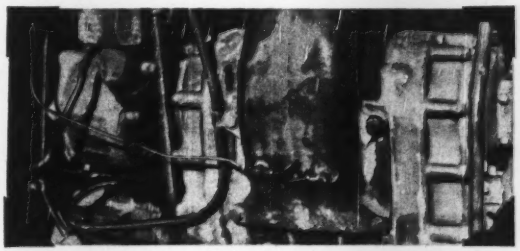
CONDITIONS 25° below zero weather—parked in open shed

EQUIPMENT Permanent primer with atomizers on blower

FIRM John W. Graves Heppner, Oregon

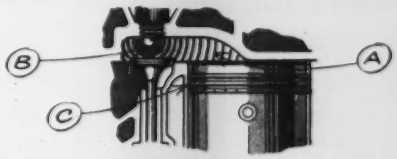
Engine starts on first turn at 25° below zero!

CHEVRON STARTING FLUID started this engine instantly every time during a severe Oregon winter, even when the tractor had been idle for several days in temperatures down to 25° below zero! John W. Graves, owner, says, "Power in the starter battery would last only for two or three revolutions of the engine, but Chevron Starting Fluid required only one turn to kick it off." With one or two strokes of the dash-mounted pump, fluid was forced from the storage tank (left center) into the "blower", before the starter button was pushed.



ATOMIZER NOZZLES, as shown on this diesel "blower", are also used to inject Chevron Starting Fluid into intake manifolds of gasoline engines. Complete primer equipment may be purchased from your fluid supplier. Chevron Starting Fluid comes in 3-pint cans, and capsules of two sizes—7CC's and 17CC's, packed 12 and 24 per can. It is approved by leading engine manufacturers.

How CHEVRON Starting Fluid Starts Gasoline and Diesel Engines Instantly



A. Atomizes in lowest temperatures and provides powerful, easily fired vapor in combustion chamber.

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C. Contains lubricant and additives—prevent cylinder wear and ice formation in primer equipment.

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MUNICIPAL AFFAIRS

MAMMOTH PAVING JOB—Here is part of the steady stream of equipment that in record time helped complete a mammoth paving job recently at Los Angeles International Airport. Area equivalent to six miles of average city street was covered in 12 days. Contractors for the job were Oswald Brothers.

Municipal Reports—New Style

Typical of a new kind of annual reports on municipal activities are three unusually attractive booklets just received from Milwaukee, Wis., Philadelphia, Pa, and New York City.

The Milwaukee publication is called "Roads to a Better Milwaukee." It is a 112-page, illustrated report concerning the accomplishments of that city last year. It is called a "1950 report of 1949 activities." In great detail it covers such subjects as General Administration, Finance, Protection, General Welfare, Public Works, Public Utilities, and Education and Culture. It was prepared by Gerald P. Caffrey, editor of the Municipal Reference Library, with the assistance of his staff, and was submitted to the Common Council.

"Progress in Philadelphia," a record of achievement during 1949, is the title of the brochure put out by "The City of Brotherly Love," and is dedicated by the mayor to the citizens. It is a 72-page booklet, profusely illustrated, in which the highlights of progress are indicated by this tabulation of expenditures for work completed in 1949, as follows: Sewers and sewage treatment, $42,000,000; better water, $12,000,000; flood control, $5,500,000; airports, $15,000,000; playgrounds and recreation, $11,750,000; police and fire improvements, $5,550,000; better highways and lighting; youth study center, $2,275,000; hospitals and health centers, $8,200,000; incinerator plants, $1,250,000; port improvements, $4,000,000; parking facilities, $2,000,000; transit improvements, $27,900,000; new Pennsylvania Boulevard, $4,300,000; and gas work extension, $7,500,000.

The New York City Department of Parks has just gotten out an illustrated booklet on the reclamation of park areas by sanitation fill and synthetic top soil. Commissioner Robert Moses also issued a graphic booklet concerning the new arterial highways and con-

Federal grants-in-aid work out well in Connecticut

Of the 48 Connecticut communities sharing in the advance planning program under the War Mobilization and Reconversion Act of 1944 nine have repaid their planning advances, indicating that construction work has been started. They are:

Place	Project	Estimated Cost	Planning Advance
Bridgeport	Sewage Treatment Plant	$929,000	$11,000
Bristol	Sanitary Sewer	630,880	9,025
	Sewage Treatment Plant	718,300	11,315
Harwinton	School Building	231,625	3,500
Naugatuck	School Building	413,200	7,500
New Haven	Treatment and Disposal Plant		
	Storm and Sanitary Sewer Lines	1,262,000	24,664
Willimantic Water System Additions		539,200	22,300

Under this act allotments are made only for the design of projects that conform to and are part of an overall state or local public works plan.

Plans have been reported as completed for 29 other projects which would cost an estimated $22,444,267 but on which construction work has not been started.

necting boulevards under construction or just completed in the various boroughs of the city.

Municipal Briefs

For fluoridation—The Connecticut Department of Health says that the recent endorsement of the addition of sodium fluoride to the state's water supplies by the Connecticut Dental Association calls attention to this simple and economical method of reducing tooth decay. The department believes that wide adoption of this plan might mean an average of 60 percent less tooth decay in the state. The American Water Works Association recommends that doctors and dentists take responsibility in this matter.

In Michigan a study of this subject was started in 1945, when the addition of sodium fluoride to the water supply of Grand Rapids was started. At the same time Muskegon was selected as a control city. Four years later, five-, six- and seven-year-old children in Grand Rapids were found to have less than half the amount of dental decay that existed in 1944-45, while Muskegon children in 1949 were averaging about the same amount of dental decay as was found in that group in 1945.

Canadian planners—Every city in Canada with more than 30,000 population has an official community planning board, according to the Community Planning Association of Canada. There are 150 planning boards or commissions active in the dominion, some of them with authority for a group of neighboring municipalities. Planning agencies this year are spending more than $2,000,000. Community planning is now taught at three Canadian universities, McGill, Montreal; Manitoba, Winnipeg; and British Columbia, Vancouver. A national planning conference was held at Ottawa Oct. 6-7.

Indianapolis housing—The first 500 units of 2,000 planned for Indianapolis, Ind., will go up as a public housing project on the southeast side next spring. It will be a $3,300,000 project featuring three 14-story apartment buildings and 12 two-story structures. The development was designed by Skidmore, Owings and Merrill of Chicago, New York and San Francisco, who designed the $6,000,000 J. C. Penney building now nearing completion on Monument Circle. Federal money was advanced for planning the project and there will be a bank loan which rents will amortize, obviating need for local tax funds.

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DEVELOPMENTS ABROAD

Peru plans $200 million irrigation, mining work

Anticipating the eventual appearance of necessary capital, the Peruvian Ministry of Development and Public Works recently completed a ten year, $200,000,000 program calling for irrigation of more than 123 million-acres of desert lands.

Thirteen irrigation projects—six with power tie-ins—are involved as well as some highway and railroad work.

• **No money**—Most of the projects, however, will remain on the drawing boards until either Peruvian or foreign capital is available. The Public Works Ministry said, however, that two of the projects, one on the upper valley of the Majes River, are now under study by the International Bank of Reconstruction and Finance. The second project said to be under consideration is an immense undertaking in the upper valley of the Majes River, in the south coastal region of the country.

Most of the remaining irrigation projects are in purely speculative form, many of them aimed at tapping of Andean lagoons that form part of the Amazon system to improve the rich but dry farmlands in the country.

• **Two projects**—The project in the valley known as the Chao-Viru district on the desert area of the north central coast, could be watered by tapping the River Santa. To carry out this program independently of the development of the industrial city of Chimbote would cost about $17,900,000 over a four-year period and would provide irrigation water for 98,840 acres of land already under irrigation, reclaim about 148,260 acres more from the desert, and might possibly provide 100,000 hp of electrical energy.

The second project, on the Majes River, which reaches the Pacific at Camana, would cost almost $70,000,000 over a period of from six to ten years.

Starting in the Andean uplands, the project would begin with three earth dams to regulate the flow of the erratic Majes, and would include a 70-kilometer railroad to link with the Southern Railway of Peru that runs from Matarani to Lake Titicaca and Cuzco. The Peruvian government has already spent more than $250,000 in preliminary surveys for this project and now maintains 30 engineers on the field job. It has also contracted for the services in an advisory capacity

of Albert B. Bartlett and Walter E. Duncan, both of the Salem Engineering Co. of Salem, Ohio. One of the reasons that the government strongly favors the Majes project is that it offers a solution to the national problem of wheat supply. The wheat lands to be irrigated by this project would be able to give 10,500 metric tons a year, enough to remove wheat from the list of politically critical imports.

On the mining front, the Peruvian state-owned mining bank (Banco minero), the Ministry of Public Works and the Salem Engineering Co. together have started a survey looking toward industrialization of the country.

The Banco Minero has prepared a five-point program for investigations into power, zinc, coal, stockpiling and remote mines.

• **Power needed**—The most important of the problems is that of power. Most urgently needed in the program is a project that would harness hydro power available to provide a possible maximum of 20,000 hp along the course of the Chris River in south central Peru. The general question of power is one of great importance to the nation's mining industries, which at present use diesel power in very small quantities.

Russian irrigation scheme—From behind the iron curtain (by the Moscow radio) comes word of a vast Soviet government-approved scheme to irrigate the deserts of southern Asiatic Russia, including the building of a 650-mile canal. Focal point of the

scheme will be the Turkmen Soviet Republic bordering the Caspian Sea, Persia and Afghanistan. Work is planned to begin in 1951. When completed, in 1955, the project is expected to irrigate about 3,100,000 acres for cotton growing in Turkmen and in Kara Kalpal Republic to the north, and for 15 million acres for pasture. The scheme calls for three large dams with hydro-electric capacity of 100,000 kw, a system of drainage and irrigation canals 700 miles in length, and the creation of forest belts and sand fixation. By canals, the waters of the Amu Darya River in the east will be taken to the waterless plains in Western Turkmen. Large drainage, irrigation and water-supply canals will fan out from the main Turkmen canal to irrigate the southern part of the Caspian plain in western Turkmen, and the lower reaches of the Amu Darya.

Lempa Dam contract—Contract for the $10,000,000 Lempa River Dam project in El Salvador has been let to the J. A. Jones Construction Co. of Charlotte, N. C. Construction will start soon, and 50 U. S. technicians will be involved. Contracts for electrical equipment most likely will go to Europeans, or they may be thrown to Westinghouse or GE—whose bids are considerably higher. More than $1,000,000 is involved. Fourteen bids were considered before the contract for the dam was awarded. The Jones tender met every specification, without conditions or reservations. The contract is based on unit prices. It is estimated that the electrification program, costing about $19,600,000, will be finished in May, 1953.

Four hangars in one—Sabena Belgian Airlines' giant hangar, recently completed at the Brussels airport, is actually four hangars in one with an area 885 ft. front and 170 ft. 6 in. deep under a single roof, which is of hollow concrete slabs measuring 23 x 3 x 10 ft. each. These are supported by hollow beams of pre-stressed concrete. Span of these beams is 170 ft. 6 in., the depth of the hangar, and the deadweight of each beam is 300 tons. The pre-stress of each beam was obtained by use of 424 wires of 0.276 in. dia. providing a tensile strength of plus or minus 1,400 tons. The beams were fabricated on the ground and then placed on the columns.

Almost $10,000,000,000—Marshall Plan purchase approvals issued during September for 17 western European countries totalled $118,400,000. This brought the cumulative Marshall Plan total for western Europe as of September 30, 1950, to $9,796,800,000.

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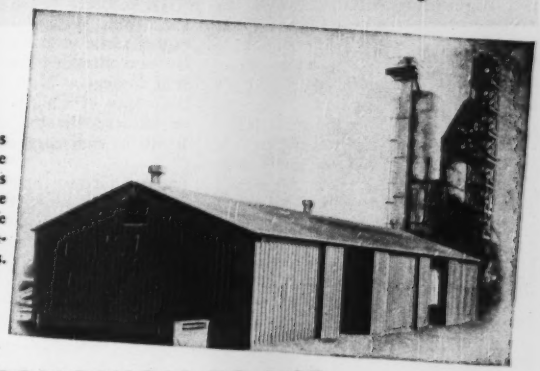

Butler Buildings like this one can serve you as on-the-job office quarters or as safe storage for equipment, materials.

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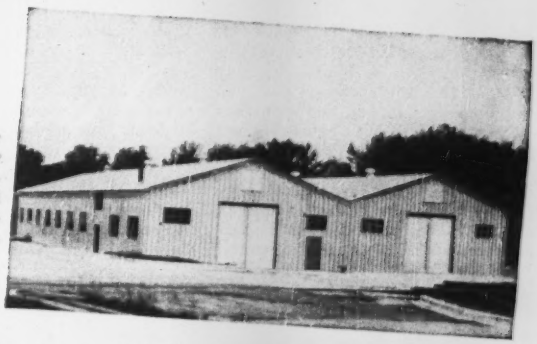

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MEN AND JOBS

C. C. McGinnis is project manager for Thompson and Street, Charlotte, N. C., contractors, on the construction of a 500-bed Veterans Administration hospital at Durham, N. C.

Robert J. McNutt has resigned as city engineer at Hillsdale, Mich., to become city manager of Hazel Park, Mich.

One of the Bureau of Reclamation's top construction engineers, **Tom A. Clark**, of Ithaca, Neb. has been transferred from the Riverton Project in Central Wyoming to head the Weber Basin Area office in Utah. He will become area engineer, in charge of all federal reclamation activities there, including continued investigations and preconstruction activities for the $70,000,000 Weber Basin project.

Ross D. Billings is field engineer in charge of obtaining detailed data on all construction features for a definite plan report on the Weber Basin project. The other two major branches of the expanded Weber Basin organization will be headed by **Francis M. Warnick** as project development engineer, and **Earl S. Jensen**, formerly chief of the construction division of the Branch of Design and Construction in the Salt Lake Regional Office, as office engineer.

Col. Edward G. Daly, district engineer of the Tulsa District, Corps of Engineers, has been ordered to duty as commander of a field engineer troop unit. Colonel Daly, who has headed the Tulsa district office for the last 15 months, will report to Fort Campbell, Ky., to assume command of an engineer combat group. Before going to Tulsa, he had been the district engineer of the Charleston, S. C. district. He was graduated in 1927 from West Point where he returned some years later as instructor. He also attended the Armed Forces Staff College at Norfolk, Va., and the University of California, from which he received his Bachelor of Science degree in civil engineering.

The Sanitary Engineering Division of the Cook County Department of Public Health now has a staff of seven sanitary engineers, four of them hired during the last year. They are: Chief sanitary engineer, **Benn J. Leland**; district sanitary engineer, **Robert de Jonge**; district sanitary engineer, **S. W. Nich**; and assistant district sanitary engineers, **C. W. Browning**, **A. F. Vondrick**, and **R. J. Wollschlager**.

Carl T. Baer, the public works department's design engineer at Dallas, Tex., has been made executive assistant, to coordinate the work of the engineering division. **Hampton Couch** succeeds Baer as the department's design engineer.

Wayne Arrasmith, Whitman County Engineer at Colfax, Wash., for the last two years, has been called into duty with the Army Engineers, in which he holds the reserve rank of captain. He has been with the county since 1939, except for war service.

Inspecting the interlocking signal tower being built for the Pennsylvania Railroad at the Pittsburgh yards, are, left to right, Robert Camlin, the railroad's architect, LeRoy Thompson, sales engineer, and R. W. Gastmeyer, sales manager, Q-floor division, H. H. Robertson Co. The tower is the largest of the type in the world. More than 150,000 miles of wire will be contained in the cellular steel floor. Trimble Construction Co. is the contractor.

Col. K. M. Moore, C. E., has been assigned as district engineer of the San Francisco District, Corps of Engineers, replacing Col. Fremont S. Tandy. Moore had previously served as district engineer in the district in 1940-41 and 1945-46. He was graduated from the U. S. Military Academy in 1917 and received his commission in the Corps of Engineers. He later attended the Massachusetts Institute of Technology, receiving a B. S. in civil engineering. During 1946-48 he was engineer for U. S. Army forces in Korea, and has also been district engineer at Duluth, Minn. Latterly he commanded the Granite City Engineer Depot in Illinois.

Thoralf Riveness, previously with the CAA at Seattle, Wash., has been named chief engineer of the Anchorage division of the Alaska Road Commission. He succeeds William H. Niemi, transferred to Juneau as chief of operations. Riveness has been engaged in highway and airport construction for the last 15 years.

G. W. Titus, of Edmundston, N.B., has been named acting chief highway engineer of New Brunswick province at Fredericton in the absence of A. S. Donald, chief engineer, due to severe injuries sustained in a highway accident over a year ago. Titus has been district highway engineer at Edmundston the last 18 years.

William A. Bonnet has been named acting Oak Ridge, Tenn., city manager by the Atomic Energy Commission until a replacement can be secured for J. M. Rorimer, former manager who resigned Oct. 1. Mr. Bonnet went to Oak Ridge as an officer in the Corps of Engineers in 1943. He will continue his duties as the assistant director of the Office of Community Affairs.

Raymond MAKES 5 TYPES OF CONCRETE PILES

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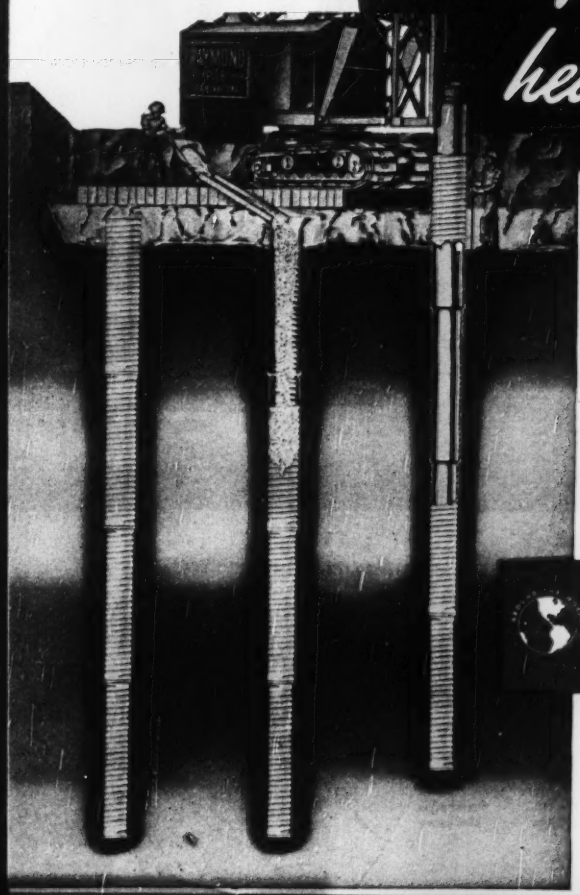
At left, completed Step-Taper Pile. Center, filling the permanent steel shell with concrete after internal inspection. Right, driving the pile with rigid core.

2. STEP-TAPER PILES FOR *long lengths* WITH *heavy loads*



Raymond Step-Taper Concrete Piles driven with rigid steel cores and heavy hammers are designed to develop high load-carrying capacities at depths to 80 feet. The permanent steel shell maintains the resistance developed during driving. After the shell is inspected internally, it is filled with concrete and cut off at the specified elevation.

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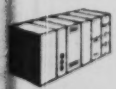
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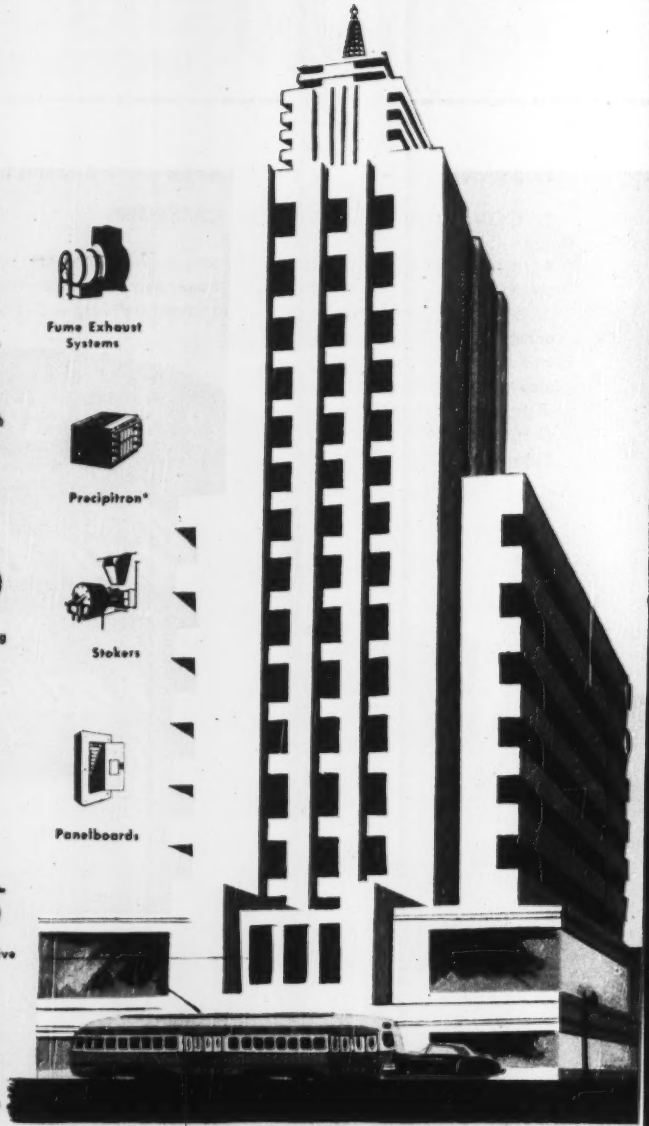

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EDUCATION and RESEARCH

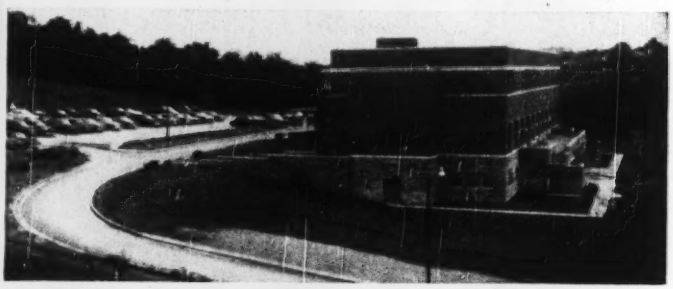
FOR TITANIUM ALLOYS—Nobuyoshi Kato, Kyoto University, left, Yoshiro Asami, Hokkaido University, center, and Yashushi Watanabe, Tohoku University, right, listed as Harold K. Work, director of the research division, New York University College of Engineering, explains the operation of a novel arc-melting unit used for production of titanium alloys. The Japanese educators are making a tour of engineering colleges in the U. S. and are here under the Exchange-of-Persons program sponsored by the Department of the Army's Far East Command. Program details were arranged by the Institute of International Education.

North Carolinians want a new state college

The Charlotte, N. C., Engineers Club, backed by the Charlotte city council, has asked the North Carolina State Advisory Budget Commission for an initial grant of $3,000,000 during the next biennium to help establish a new state-supported four-year college at Charlotte.

The Engineers Club made the proposal on the ground that at present there is no state-supported four-year college in the area. The budget commission was told that the initial $3,000,000 asked would not be enough, but it would get the plan started. There was no estimate of how much the whole project would cost.

The budget commission took the matter under advisement and will submit its recommendations on the request to the state legislature.



WESTINGHOUSE EDUCATIONAL CENTER—This building was recently opened on a 10-acre plot at Wilkinsburg, Pa., to give employees of the Westinghouse Electric Corp. and their families opportunities for further educational and cultural development. A large part of its 35,000 sq ft of floor space is used for six ultra-modern classrooms and a large lecture hall, where the evening graduate study program is carried out in cooperation with the University of Pittsburgh. Other classes are held on the university campus. Besides the classrooms the center has a reading room, lobby-lounge, snack bar, auditorium, hobby rooms, and a number of offices.

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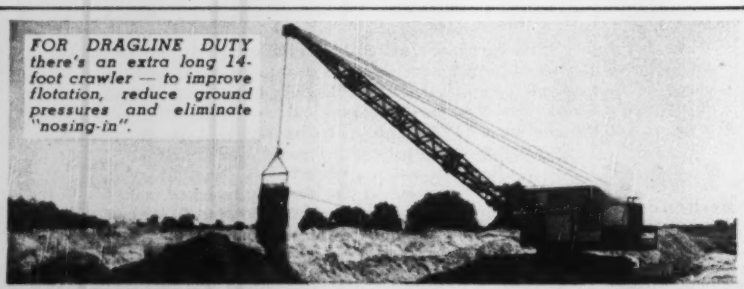
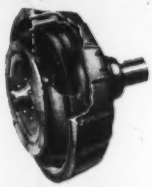


FOR DRAGLINE DUTY there's an extra long 14-foot crawler — to improve flotation, reduce ground pressures and eliminate "nosing-in".



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Kills Shock in Rock

Only the Lorain-50 "Series" Shovel offers you these important advantages in a 1-yard class machine! They add yards and years to performance in rock . . .

- **The engine can't be stalled under any digging condition.**
- **Digging impacts and stresses are absorbed by the fluid clutch — can't reach either *engine* or *turntable*.**
- **Power "hangs-on" until the dipper is loaded with the toughest rock.**

You Get Them Only In The "50"

SEE YOUR THEW-LORAIN DISTRIBUTOR FOR PROFIT FACTS ON THE "FIFTY"

Over 131 years teaching of civil engineering

Norwich University, at Northfield, Vt., claims to have been teaching civil engineering longer than any other American institution of learning, and its claims seem to be well documented.

According to David L. Snoder, head of the department of civil engineering, a group of some twenty young men, who later became well known civil engineers, received their early training at Norwich Academy during the period 1820-1825. Moncure Robinson and Alfred Wingate Craven, of the class of 1824, were leaders in the establishment of the American Society of Civil Engineers.

Norwich University is planning to celebrate—a year hence—the centennial of the graduation of Maj. Gen. Grenville Mellen Dodge, Civil War Union general, who at one time was chief engineer of the Union Pacific and other railroads, and also its 132 years of civil engineering instruction.

Brick and tile research

Four major research projects aimed at lowering "in-the-wall costs" of brick and tile masonry construction have been launched by the Structural Clay Products Research Foundation. Robert B. Taylor, director of research, reports that these projects include studies on:

Improvement of current bricklaying techniques from motion study analyses and through better site practices and equipment; improved design for cavity walls; reinforced masonry, including panelized construction; and the use of structural clay units in prestressed construction assemblies for walls, floors, roofs, etc.

The foundation has launched a 5-year, $1,250,000 program of research.

Livability survey

Scientific answers to how much space families need in their homes will be sought in a new research project announced by the University of Illinois Small Homes Council. An experimental house will be set up to study findings of a livability survey.

Establishment of space standards for use in building small homes which will be better suited to current family needs than many now being constructed is the object of the study. Making the most of good design to improve the use of space without increasing costs will be emphasized.

The study is being made by the university under contract with the Division of Housing Research of the Housing and Home Finance Agency, Washington, D. C.

WHEN BUYING A VIBRATOR

It Pays to Insist on a JACKSON

Jackson vibrators are the products of more than 27 years of specialization in this field, and are offered in a wide range of models to give you the vibrator that exactly suits your particular needs on every type of construction . . . the one that will give you the greatest savings in time, labor and money; plus UNMATCHED DEPENDABILITY.

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THE POWERFUL, Handy JACKSON ELECTRIC

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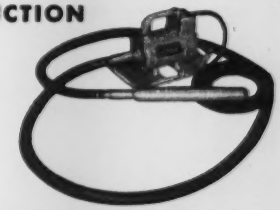

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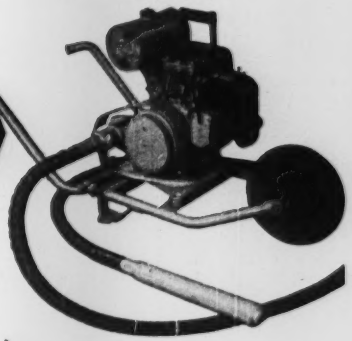
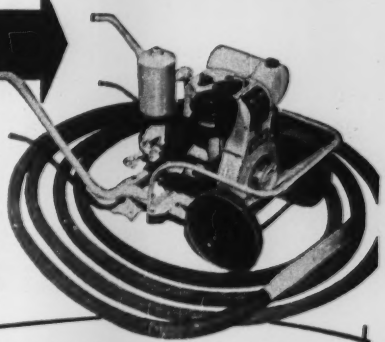


THE HYDRAULIC with the TIME-SAVING 50' REACH

the hard-to-reach spots are easily accessible with this machine and much time is saved by eliminating changes of power unit location. All moving parts run in oil under pressure—no maintenance required. 7 HP engine and 2¾" head assures perfect compaction under most severe conditions. 4,000 to 7,000 VPM — instantly variable. The finest vibrator of its type money will buy.



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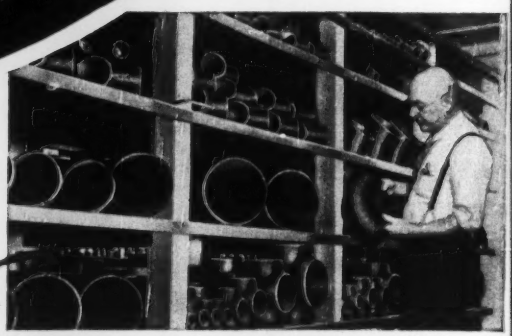

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MEETINGS

Theodore N. Vane, head of the Vane-Stecker Co., Detroit, Mich., has been elected president of the Detroit Mason Contractors Association. Other officers: vice-president, Carl Lundquist, Carlandy Construction Co., secretary-treasurer, Anthony L. Leto, Leto Construction Co.

The financing, design and construction of the 118-mile New Jersey Turnpike was the subject of an address by Elmer K. Timby, of Howard, Needles, Tammen & Bergendoff, before the American Society of Civil Engineers, Junior Branch, in New York City. Mr. Timby, formerly on the teaching staff of Princeton University, commented particularly on the speed with which the turnpike is being constructed and said that it is a prime example of how diversified engineering talents may be called upon to build similar large projects rapidly. He was assisted in his talk by Carl H. Peterson, field engineer for the engineering firm in Princeton, N. J.

A number of railway track contractors have formed the Associated Railway Track Contractors of America, representing track contractors in the United States. Royce Kershaw, Montgomery, Ala., was elected president and director. Murray Bailes, Jacksonville, Fla., vice-president; John Deckert, Chicago, secretary and director; M. F. Longwill, St. Louis, Mo., treasurer; and Charles D. Kelly, St. Louis, T. F. Scholes, Reading, Pa., and A. S. Wikstrom, Skaneateles, N. Y. directors. Temporary offices have been set up at 111 West Washington treet, Chicago.

South Piedmont Chapter of Professional Engineers of North Carolina, Inc., with headquarters at Charlotte, has been incorporated to promote high standards of engineering education. Incorporators are B. O. Vannort of Charlotte, Guy Fisher of Concord, and M. E. Beatty of Albemarle, and others.

Engineers and constructors form cross-sectional group

Los Angeles' Engineers-Constructors Society, which claims a cross-sectional membership of various salaried construction and electrical men, has double its membership since March.

The society, begun in March, 1949, in Los Angeles, is a non-profit organization which is attempting an experiment in technical associations. Its aim is to cut across all existing technical societies in the construction and electrical fields so that home office construction engineers, for example, can meet with field men in electrical construction to discuss common or overlapping problems. To date, the Engineers-Constructors Society has 75 members among Los Angeles area groups. It will decide shortly whether to branch out into other U. S. cities or to remain a local association.

The association was formed to give cross-sectional opinion to a single engineering association, and it accepts membership from office managers, administrative personnel, material men and others, as well as from various classifications of field and home-office construction and electrical engineers. It issues a monthly bulletin, the "Enginering and Construction Reporter."

Originally membership consisted primarily of Bechtel Corp. employees, but now includes members from many leading contractors in southern California. M. J. Rosenthal is president; H. C. Borcherding, vice-president; C. V. Landmark, secretary; A. C. Jenkins, treasurer; J. P. Becich, N. L. Glidden, and E. L. Hill, directors.

CALENDAR

Indiana Water Conservation conference, Purdue University, Lafayette, Ind., Nov. 28-29.

Arizona Sewage & Water Works Association, Pioneer Hotel, Phoenix, Ariz., Nov. 30-Dec. 2.

Congress, American Municipal Association, Hotel Statler, Washington, D. C., Dec. 4-6.

American Association of State Highway Officials, Miami, Fla., Dec. 4-7.

County Engineers of Iowa, Iowa State College, Ames, Dec. 6-8.

Building Industry Employers of N. Y. State, BTEA Clubrooms, 2 Park Ave., New York City, Dec. 14-16.

Highway Research Board, National Research Council, annual meeting, Washington, D. C., Jan. 8-12.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 10-12.

N. Y. Section AWWA, luncheon meeting, Park-Sheraton Hotel, New York City, Jan. 16.

National Association of Home Builders, annual convention and exposition, Stevens and Congress Hotels, Chicago, Ill., Jan. 21-25.

Conference, Wisconsin County Highway Commissioners and County Highway Committee Members Association, Milwaukee, Wis., Jan. 23-25.

Third California Conference on Street and Highway Problems, University of California, Berkeley, Jan. 24-26.

Associated Equipment Distributors, annual meeting, Stevens Hotel, Chicago, Ill., Jan. 28-Feb. 1.

These men are working for you

Astute, efficiency-minded J. A. Henby, Vice President in charge of Production, checks on location of new equipment.

Fred Smith, deliberate, analytical Chief Metallurgist, inspects chemical composition test being run on steel tubing.

Keen-eyed, thorough Fred Brown, Chief Inspector, uses micrometer of special design to check hard-to-reach point.

John Ochs, forceful, energetic Superintendent, Fittings Forging Dept., smiles over another production record.

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OBITUARY

Gilbert V. Steel, 63, vice-president, a director and chief engineer of Abbott, Merkt & Co., Inc., consulting engineers of New York City, died at Manhasset, N. Y., Nov. 2. He was graduated from Cornell University as a civil engineer in 1910. During the first world war he served at the front in France as a first lieutenant in the 302d Engineers Regiment. In 1922 he joined Abbott, Merkt. His rise there was rapid and he became well known in the construction industry. Among the important structures he designed was the Port of New York Authority building.

Harvey Kulin, 39, consulting engineer, junior member of Couch & Kulin, Indianapolis, Ind., died Oct. 21. He was a graduate of the University of Illinois.

Oscar Quisle, 69, for 30 years a general contractor in Fort Worth, Tex., died Oct. 27. He had built important structures in that section.

George F. Holland, 54, senior resident engineer for the Tennessee State Highway Department, died Oct. 30 in Knoxville. He had been continuously employed by the department since April 16, 1924, first as resident engineer and later as senior resident engineer. Prior to that he was with the State Highway Commission of North Carolina.

William S. McDonald, 60, senior office engineer in the canal services of the Department of Transport, Ottawa, Can., died Oct. 29. He was graduated from the University of Alberta and did much early surveying work in that province. He joined the old Canadian Department of the Interior after the first world war and had been in the public service since that time.

Henry Merlin Hughes, 47, for the last 19 years an engineer with Armco Drainage and Metal Products, Inc., and at one time associated with the Ohio Highway Department and the Portland Cement Association, died Oct. 30 in Fremont, Ohio.

James A. Robertson, 90, a retired civil engineer, died Oct. 29, in Milton, Mass. Prior to his retirement he was employed by the New York, New Haven & Hartford Railroad.

Martin R. Fisher, 66, assistant city engineer of Detroit, Mich., for the last 26 years, died there Oct. 30. He was graduated from the University of

Michigan in 1906 with a civil engineering degree.

Earl W. Heple, 43, San Jose, Calif., contractor, was drowned Oct. 27 when he was swept through the outlet pipe of the earthfill Austrian Dam for which he held the contract. He apparently lost his footing when he was clearing away storm debris that had clogged the 52-in. diameter pipe.

Theodore S. Johnson, 65, professor of civil engineering at the North Carolina State College, Raleigh, N. C., from 1935 to 1941, veterans' adviser in charge of housing and liaison officer between the college administration and construction officials on the college's permanent improvements program from 1947 to 1949, died Nov. 5. A graduate of Ohio State and Cornell universities, he resigned from the college faculty in 1941 to become state director of civilian defense in North Carolina, was made State Rationing Administrator in January, 1942, and became OPA and rationing director for the state in May, 1942.

Herman T. Wright, 55, Orange County, Ind., surveyor, was killed by a truck Oct. 27 while surveying along State Road 150, west of Paoli. He was a resident of French Lick and had served two years as surveyor.

H. Miles Dibblee, 80, of Woodstock, N. B., former chief location engineer for the Canadian Pacific R. R., died at Montreal Nov. 1.

Frank M. Burlingame, 68, a civil engineer of Buffalo, N. Y., died Oct. 31. He had been with the Vulcan Asphalt Co. Inc., of Buffalo for nearly 20 years.

William H. Dance, 78, engineering manager for the Dyar Supply Co., Cambridge, Mass., died there Oct. 27. He assisted in laying the first asphalt macadam road surface used in Massachusetts. He was granted several patents for road-building devices and founded the W. H. Dance Co. in Cambridge, retiring as its president in 1946. At the age of 20 he was given the Award of Valor by Queen Victoria for saving several persons shipwrecked in the Canadian waters of Lake Huron.

Dan Rule, 73, Fremont, Ohio, civil engineer, died Nov. 8.

William G. Bergman, 73, erecting engineer for the Surface Combustion Co., Toledo; since 1930, died Nov. 8. From 1920 to 1930 he was a partner in the Toledo Engineering Co.

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12½ TON

TRUCK-MOUNTED
MODEL 40

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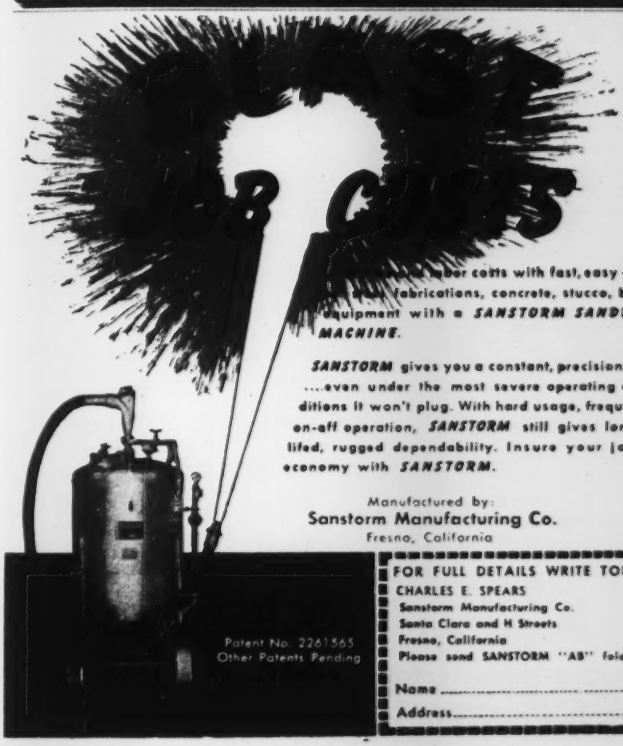

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USF also produces larger steel buildings of the same general construction in 10' and 12' clear heights with 26' or 30' span widths for erection in length multiples of 13'-4" to any desired size.

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WOOSTER, OHIO

UNIT PRICES BID BY CONTRACTORS

First paving contract on New Jersey Turnpike

Bituminous concrete vies with portland cement concrete pavement for the New Jersey Turnpike's first paving contract. The Turnpike Authority took bids from 4 firms Oct. 11, 1950, on Contract 62 covering 24.4 miles of paving from the Raritan River to Allentown. On pavement bids from the low bidder, George M. Brewster & Sons, bituminous concrete was 35% below portland cement concrete, and from the second low bidder, bituminous concrete bid was 24% below, portland cement concrete. DeLeuw, Cather & Co., Hightstown, N. J., are consulting engineers.

Bids on the two types of pavement were quoted with 3 types of shoulders, F, G and H. The H type shoulder has a compacted thickness of 10 inches consisting of pit run gravel or crusher run stone, while F shoulders have a 10-inch compacted thickness that includes a top 3-inch course of penetration macadam.

Construction of Alternate A would mean a 4½-inch asphaltic concrete pavement with an 8-inch macadam base and 6-inch subbase. Alternate B would be 10-inch portland cement concrete pavement with 6 inches of special subbase. All materials, equipment and labor must be supplied by the contractor.

The contract includes also paving 2 interchanges and 34 cross roads. The work, in Mercer and Middlesex Counties, must be completed Oct. 1, 1951. The contract will be awarded Dec. 1, and this column will publish notice of which alternate won.

Wage rates are: common laborers, $1.75 an hour; semi-skilled, $2.25; skilled, $2.50-3.10.

Bidders & range of the alternate bids, A and B with each type of shoulder, were:

1 Geo M. Brewster & Sons, Inc., Bogota, N. J.	$7,167,275	$9,350,426
2 Gall Contracting Co, Inc., Flushing, N. Y.	7,854,168	9,448,518
3 S. J. Groves & Sons Co., Woodbridge, N. J.	8,981,839	10,117,089
4 Johnson, Drake & Piper, Inc., New York, N. Y.	9,236,232	9,961,752

	Alternate 1	Alternate 2
1 Brewster	$4,726,850	$6,415,000
2 Gall Contr	4,965,850	6,155,200

Items	Quantity	Unit Prices 1	2
Alternate 1			
Asph conc pav	sy 792,000	$5.80	$6.05
Rdwy excav, earth	sy 205,000	.65	.85
Alternate 2			
P.C. conc pav	sy 758,000	8.05	7.60
Asph conc pav for truck rests	sy 34,000	6.15	7.60
Rdwy excav, earth	sy 160,000	.65	.85

Items	Quantity	Unit Prices 1	2
Shoulders			
Alt 5, Type F	sy 450,000	1.90	2.06
Alt 4, Type G	sy 450,000	1.05	1.31
Alt 5, Type H	sy 450,000	.80	1.16
Rdwy excav, rock	cy 100	10.00	12.00
Bridg appr slabs	sy 7,400	25.00	35.00
Borw excav	cy 25,000	.90	1.15
Porous fill	cy 20,000	1.75	1.75
¼-mi overhaul	cy 200,000	.04	.04
4" topsoil, new	sy 200,000	.40	.35
From stockpile	sy 300,000	.35	.24
Sodg median strip curbs	lf 260,000	.25	.14
Riprap slope prot	sy 220	10.00	17.55
Conc gutter	sy 12,000	6.50	6.40
Conc curb, Type A	lf 3,100	3.30	3.15
Type B	lf 4,000	9.00	8.20
Type C	lf 3,200	3.00	2.70
Type E	lf 10,700	2.65	2.35
Type F	lf 2,400	2.50	2.35
Type G	lf 850	2.70	2.50
Conc monuments	ea 50	25.00	20.00
Conc in headwalls	cy 10	100.00	90.00
Reinforcement	lb 600	.15	.30
Storm drain			
Reinf conc or cmt asbestos pipe 18"	lf 50	7.00	14.00
Reinf conc culv or cmt asbs pipe 15"	lf 35,000	5.00	7.50
CM, RC or CA 18"	lf 50	7.00	11.90
CM, conc or CA pipe, 15"	lf 8,100	5.00	10.45
12"	lf 50	4.65	9.00
Reloid dr pipe, 12"-18"	lf 150	4.73	13.70
Inlets with grates			
Type D-1 w/U-1 gr	ea 450	215.00	225.00
D-2 w/U-1 gr	ea 450	215.00	225.00
D-5 w/U-5 gr	ea 50	215.00	225.00
D-5 w/U-2 gr	ea 4	285.00	285.00
D-8.2/U-5 gr	ea 75	200.00	215.00
Catch basin, Type C-2 w/U-4 gr	ea 1	260.00	310.00
Manholes w/V-1 type frame & lid			
Type M1-W	ea 18	200.00	230.00
Special A	ea 2	760.00	1,070
Special B	ea 1	1,600	1,550
Mly vaults w/V-1 frame & lid	ea 4	230.00	300.00
8" CI water main	lf 850	7.50	9.60
CI pipe fits	lb 200	.30	.30
Watr pipe wint prot	lf 800	8.00	3.50
Reinf conc pav 8"	sy 15,500	6.40	7.85
Conc sidewalk 5", reinf	sy 820	6.10	6.10
6"	sy 2,000	6.25	6.20
Calc chloride	T 30	70.00	82.00
Addl for high-early-str cmt	bbl 100	1.20	3.50
Watr seed, sod areas	M gal 10,000	12.00	3.00
Mowing	cut mi 75	260.00	258.00
Maint detours	mo mi 25	1,300	585.00
Final clean up	ls	15,000	76,000
Underdrs, Type F 10"	lf 7,500	3.15	4.70
8"	lf 15,000	2.60	4.10
6"	lf 15,000	2.30	3.75
Conc cradl for storm dr, RC culv or cmt asbs pipe 15"	lf 10,000	3.30	3.50
Chanl excav	cy 5,000	1.00	4.10
CM pipe, bit coated, storm dr 12"	lf 2,100	4.75	9.00
15"	lf 1,500	5.15	10.50
For cross road paving			
Macad base crse 4"	sy 4,700	1.20	1.55
5"	sy 71,000	1.35	1.65
6"	sy 29,000	1.50	1.95
Grav shldr, surf or bse crse 6"	sy 28,000	.50	.80
Road grav	cy 700	2.85	3.30
Mod penetr macadam 3" intermed crse	sy 22,400	.90	1.00
Bit binder	gal 43,000	.12	.15
Tack ct mat appd	gal 10,000	.12	.18
Pen mac surf crse, hot appl 3"	sy 45,500	1.50	1.68
Bit conc surf crse, hot mix	T 5,000	10.75	11.70
Cold mix bit conc surf crse, Type A or T	T 900	10.75	11.70
2" compac bit mix	sy 6,300	1.05	1.45
Guard rail	lf 45,000	3.25	3.20
Perm str barricades	lf 240	6.85	6.75
Reg, warn & guid traf signs	ea 400	33.00	23.50

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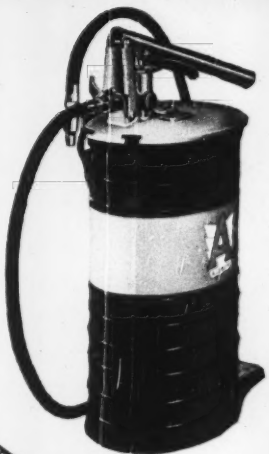
Field-proved equipment for faster, easier lubrication of your machinery —right on the job!



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- Builds 10,000 lbs. pressure with easy, one-hand operation!
- One-hand push action —No Squeeze!
- Refill in a jiffy—from "Red-A" bucket.

When detached from hose, it gives you *one-man operation, all-pressure* lubrication, for any equipment, in *any* weather. Snaps onto "Red-A" Bucket hose for quick reloading. Extension reaches deep-set fittings. "DYN-O-MITE" gun only, Model 7132.

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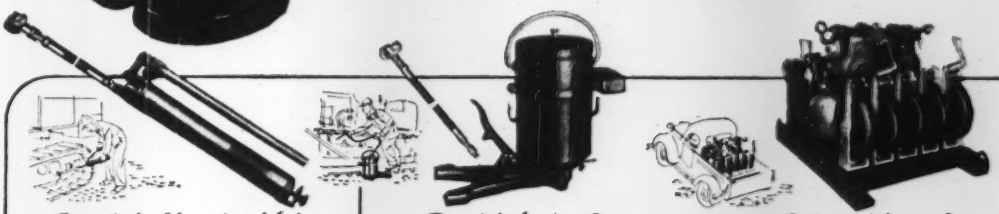
- Allows quick, volume delivery — direct from bucket to bearing.
- Up to 3,500 lbs. pressure with easy, one-hand operation!

Allows rapid, on-the-spot greasing of any machine. Flexible 6-ft. hose withstands 12,000 lbs. pressure. Couples directly onto grease fittings, or snaps onto the "DYN-O-MITE" hand gun. Oval-shaped container won't bark your shins or wobble while you pump. Red "A" Bucket and Hose only, Model 7136.



Special Alemite Value

lever-type hand gun

- Handles 21 full ounces of any type grease!
- Gives up to 6,000 lbs. pressure!
- Reaches fittings easily with hose and giant button head coupling!

Easy to fill and operate, this lightweight, lever-type gun is popular throughout heavy industry. Built for rugged wear and trouble-free service. Has loader fitting for easy refilling without disassembly. Ask for Alemite Model 6679J. Hose Model 6829-A.

Real Work Saver

foot operated pump

- Holds 25 lbs. of grease!
- 5½ foot hose with giant button head coupling!

Free use of both hands is allowed by easy foot-pedal pump action. Volume delivery —ideal for track roller and idler bearings. Ruggedly built for easier operation, longer service. It's Alemite Model 6697E. Hose Assembly Model 6615G extra.

Select Your Own

portable service station

- You can custom build the rig you need.
- Get complete lubrication service—in the field!
- Apply oil or grease direct from barrel-to-bearing.

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Three billion, two hundred and fifty million dollars*—that's what it will take to foot the bill for new water system construction so urgently needed by the American people during the next ten years!

For the thousands of communities that must carry a share of this additional investment, the vital need for water system expansion is most unwelcome at this time in the face of constantly rising costs.

This means that, wherever possible, water works officials will be called upon to keep an exceptionally close watch on expenditures . . . to see that the money laid out for new systems brings the greatest possible return to the taxpayer.

Since a sizable part of the cost of any water system involves the supply and distribution lines, an important question to be answered by these officials will be: "Which pipe will give the greatest return from this portion of our investment?"

Thousands of communities have already found the answer to this question in Transite Pressure Pipe.

A threefold warranty of economy is built into every length of Transite Pressure Pipe . . . the modern pipe developed by Johns-Manville through research and engineering to carry water more efficiently:

1. ***Long service life*** . . . because Transite Pipe is made of three inherently corrosion-resistant materials—asbestos, cement and silica—and is steam cured under pressure by a special Johns-Manville process which assures *maintained strength in service*. Carefully kept records of performance in highly corrosive soils prove that conditions which seriously weaken other pipe materials have little effect on Transite.

2. ***Low operating costs*** . . . because Transite Pipe has a smooth interior surface which provides a high water-carrying capacity (C=140). Moreover, because Transite cannot tuberculate, this high carrying capacity *remains* high through the years. Pumping costs, as a result, stay low. Delivery of a full volume of water at lowest operating cost is assured.

3. ***Maximum water economies*** . . . because Transite Pipe has tight, yet flexible joints that *stay* tight in service. These joints absorb vibration and soil stresses, cut down on costly underground water leakage. This is especially important today when water supplies in many localities must be conserved to the limit to meet constantly increasing water consumption.

In addition to these assurances of tax savings for the future, Transite Pressure Pipe offers many *immediate* economies, such as important savings in time and money during installation . . . further sound reasons why it will pay you and your community to specify Transite for the greatest return from your pipe investment.

*From THE WALL STREET JOURNAL, May 26, 1950

For complete information write Johns-Manville, Box 290, New York 16, N. Y.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Ont., Barriefield—B.A. 11/29—Canadian Commercial Corp., engrs., 70 Lyon St., Ottawa, 10-in. water mains, for Govt. of Canada, Dpt. National Defense (Air) Cartier Sq., Ottawa. Plans deposit $25.

Tex., Corpus Christi—B.A. 12/1—Nueces County Water Control & Imprvt. Dist. 2, c/o J. O. Nicholson, Sr., 102 Davis Dr., Flour Bluff Route, steel, concrete elevated and ground storage tanks, $125,000; pump. station, $125,000; 130,000 lin. ft. c.i. water lines, $450,000. Plans deposit $25 each. J. E. Greimer Co., 3712 Milam St., Houston, engrs. CD 11/1.

California—B.A. 12/5—State Div. Architecture, P. Wks. Bldg., Sacramento, water development project at Old Discovery Site and Marshall Historical Monument, ElDorado Co. Anson Boyd, Sacramento, state archt.

Tex., Louise—B.A. 12/5—Wharton County Water Dist. 1, Louise, WW sys. exten., imprvs. $45,000.

LOW BIDDERS

† **Calif., Camp Roberts**—U. S. Eng., 180 New Montgomery St., San Francisco, Nov. 6, rehabilitation wells, pump. plant and showers on Hunter Liggett Reservation, Spec. 04-203-51-35, from Western Pump Co. Ltd., Box 47, San Jose, $67,901.

† **N. M., Las Cruces**—U. S. Eng., Box 1538, Albuquerque, transfer facilities for water production well, (pump house, sedimentation basin, pump. unit, water treatment unit, etc.) White Sands Proving Grounds, Serial No. ENG 29-005-51-9 from Hollowy Constr. Co., Box 84, Albuquerque, $34,900. CD 1/9, under LB.

CONTRACTS AWARDED

Fla., Fort Walton—City, WW imprvs.; to E. N. Murray, Buena Vista, $137,200. Bids 7/25. CD 8/10, under CA.

N. D., Reeder—City, general contract WW sys., to Tri-State Excavating Co., 630½ 1st Ave. N., Fargo, $65,400. Bids 10/2. CD 9/28.

Tex., Grapevine—City, WW distr. lines, own forces, $50,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs.

Tex., Nixon—City, water lines, own forces. $45,000. CD 1/30.

N. B., Atholville—Village, A. J. Comeau, chn. WW Comm., installing water and sewerage sys. to Patrick Jean St. Quentin. Approx. $80,000. CD 2/8.

Ont., Sudbury—City, L. N. Houck, clk., installing water and sewer services in Beaton sub-division, to Muskoka Constr. Ltd., North Huntsville. Approx. $120,050. CD 9/18.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Del., Wilmington—B.A. 11/28—President of Levy Court, New Castle Co., Public Bldg., sanitary sewers in Collins Park, New Castle Hundred. Plans deposit $5. J. I. Cahalan, co. engr.; adv. ENR 11/23. CD 2/14.

Tex., Louise—B.A. 12/5—Wharton County Water Dist., Louise, sanitary sewer lines, sys. imprvs. $63,000.

Calif., Tuolume City—B.A. 12/12—Tuolume City Sanitary Dist., Firehouse, sewage disposal works incl. sewage treatment plant, sewage collection sys. Approx $50,000. Plans deposit $15. Davis & Holman, 234 W. Harding Way, Stockton, engrs.

LOW BIDDERS

Ala., Florence—City, Nov. 1, sanitary sewer imprvs., from E. F. Martin & F. J. Kirkpatrick, Florence, $70,561.

D. C., Wash.—Dist. of Columbia Dpt. Sanitation, District Bldg., Oct. 16, sludge drying and incinerating equipment, Sewage Treatment Plant, Blue Plains, from Morse Boulger Destruction Inc., 205 E. 42 St., New York N. Y.; $711,446. CD 10/5.

▲ **Ind., Evansville**—City, City Hall, Nov. 6, sewage disposal works and sewers for east side of city, from Ryan Constr. Co., Court Bldg., $4,800,000. CD 10/26.

Kan., Parsons—City, D. W. Raymond, clk., Nov. 2, sewage treatment plant with auxiliaries and appurtenances, etc.; from Universal Bridge Co., Inc., Scarritt Bldg., Kansas City, Mo., $127,000. Est. $85,000. CD 10/25.

New York—President Queens Boro, Boro Hall, 120-55 Queens Blvd., New Gardens Zone 15, Oct. 30, combined sewer appurtenances, 56 48 Aves., 196 Pl., 207 Sts., Horace Harding Blvd., N.S., from 207 to 216 Sts. and high level combined sewer appurtenances, Horace Harding Blvd., N.S., from 215 St. to Bell Blvd. from Cozzi & Warburg, Inc., 33-33 147 St., Corona, $573,971 est. $570,971 *** storm sewer, of full capacity and appurtenances, Horace Harding Blvd.; combined sewer appurtenances Horace Harding Blvd. at 94 St.; 94 St. and Queens Blvd.; sanitary sewer and appurtenances, 94 St. and from connection at about Station 5 plus 05 to combined sewer north of northerly side of Horace Harding Blvd. southerly to connect with an existing sanitary sewer near the intersection of southerly side of Horace Harding Blvd. and northeastery side of Queens Blvd., with diversion chambers where necessary, from Oakhill Constr. Co., Inc., 74-20 Caldwell St., Maspeth, $232,288 est $217,177. CD 10/19.

CONTRACTS AWARDED

Calif., South San Francisco and San Bruno—Cities of South San Francisco and San Bruno, City Halls, joint sewage treatment plant, to M. & K. Corp., 405 Montgomery St., San Francisco, $892,691. Bids 10/16. CD 10/24, under LB.

Md., Towson—Comrs. Baltimore Co., Court House, Zone 4, Contr. 22b S. Gwynns Falls Intercepting Sewer, 28,720 lin. ft. 20- to 33-in. vitr. clay pipe, 225 lin. ft. 30 and 36 in. c.i. pipe, manholes etc., to Utilities Constr. Co., Lutherville, $493,609. Bids 10/11. CD 10/4.

Mich., Bay City—State, A. N. Langius, dir., State Bldg., Dpt., 115 State Office Bldg., Lansing, concrete sewage disposal plant and treatment facilities, Bay City State Park, to A. J. Remus Co., 1208 W. Birney St., $96,711. Est. $85,000. Bids 10/18.

Okla., Lawton—City, storm sewers in business sect., to Russ Mitchell, Inc., 5304 Spanish Trail, Houston, Tex., $886,669. Est. $900,000. Bids 10/26, awarded 10/25. CD 10/16.

Tex., Buffalo—City, City Hall, Nov. 3, sanitary sewerage sys. and treatment plant to C. L. Andrews, Bryan, $50,185. CD 10/10.

Tex., Galena Park—City, sanitary sewers. Owner builds. $56,000. CD 6/19.

B. C., Penticton—City, City Hall, laying approx. 2½ mi. sewer mains and laterals, constr. manholes and laying sewer connections to lot lines, to G. W. Lecingham & Co. Ltd., 1025 W. 77 Ave., Vancouver, $95,488 Bids 10/16, awarded 11/3.

BRIDGES

BIDS ASKED

† **Washington**—B.A. 11/30—Officer in Charge of Constr. 13th Naval Dist., 1611 W. Wheeler St., Seattle, 2 automobile-ferry welded steel transfer bridges at Indian Island Annex, Naval Ordnance Depot, Spec. 25501. Plans deposit $10.

New Jersey—B.A. 1/25—New Jersey Turnpike Auth., 65 Prospect St., Trenton.

Essex and Hudson Counties—Contr. 48, two 38 ft. wide reinf.-con. roadway deck slabs upon superstructure steelwork to be constructed under Con. 20, between south abutment Station 466 plus 48.16 and the north abutment Station 534 plus 95.41, etc. in connection with constr. Passaic River Bridge, Newark and Kearney. Plans deposit $5. Ammann & Whitney, 185 Raymond Blvd., Newark, engrs. CD 7/13/49.

LOW BIDDERS

Idaho—State Hy. Dpt., Boise, 225 ft. steel, concrete bridge over Priest near just below outlet of Priest Lake, Bonner Co., from Henly Constr. Co., Lewiston, $121,125.

▲ **New Jersey and Pennsylvania**—Delaware River Joint Toll Bridge Comn., 526 Broad St. Bank Bldg., Trenton, 8, N. J., Nov. 9, constr. Trenton approach to Delaware River Bridge from Morrissville, Pa. to Trenton, N. J., from George M. Brewster, 275 W. Fort Lee Rd., Bogota, $1,466,234. CD 10/20.

CONTRACTS AWARDED

Kansas—State Hy. Comn., Seneca, Bridge 71-66-0.9, 64 ft. three 80 ft.-64 ft. continuous steel beam spans, Sta. 59 plus 01, Proj. 71-66 S 199 (2), Nemaha Co., to Inland Constr. Co., 3867 Leavenworth St., Omaha, Neb., $79,938. Bids 10/27. CD 10/13, under Streets & Roads.

▲ **Michigan**—State Hy. Comn., Lansing, 4 complete concrete, steel bridges and 2 partial structures, intersection John C. Lodge and Edsel Ford Expressway, proj. UI B 15 of 82-12 CI (UI 404 25), 26-27-28-29-30, Wayne Co., to L. A. Davidson Co., 213 E. St. Joseph St., Lansing, $1,577,053. Bids 11/2 CD 11/9 under L. B.

▲ **North Carolina**—State Hy. & P. Wks. Comn., Raleigh, reconstruct bridge over Chowan River, 1.5 mi. U. S. 17 between Windsor and Edenton, Proj. 1092, Bertie and Chowan Counties, to Bowers Constr. Co., 805 W. South St., Raleigh, $1,457,729. Bids 11/9, awarded 11/10. CD 11/13, under LB.

Alberta—Province of Alberta, Parliament Bldgs., Edmonton superstructure for Castle River bridge, Castle River, to Poole Constr. Co. Ltd., 10503 109 St., Edmonton, $90,000. L. G. Grimble, Parliament Bldgs., engr. Awarded 11/3.

STREETS AND ROADS

BIDS ASKED

▲† **Oklahoma**—B.A. 12/5—U. S. Eng., P. O. Box 61, Tulsa, relocation Highway 69 (Fort Gibson Dam, Grand Neosho River), Inv. CIVENG 34-066-51-19. $1,500,000. CD 10/31

LOW BIDDERS

▲ **Florida**—State Hy. Dpt., County Court House Auditorium, Brooksville, Oct. 31, from Coggin & Durmont, Chipley, sand clay base with bit. surf. tr. 6 mi. State Rd. S-179-A, between Westville and point 6 mi. northeast Job 4251-150, Holmes Co., $76,925; bit., 75 ft. concrete slab bridge on treated timber piling, 3.951 mi. State Rd. S-390 and S-389, between State Rd. 77 in Lynn Haven and State Rd. 75 at Highland City, S-62(2) and S-272 (1), Job 4650-250, Bay Co., $85,839; bit. surf. tr. 11.591 mi. rd. between Gulf Co. line and point approx. 12.44 mi. northeast, Job 4702-111, Calhoun Co., $96,660; bit. surf. tr. 1.06 mi. Rds. 71 and 22 sections in Wewahitchka, Jobs 5102-111 and 5103-104, Gulf Co., $61,829*** from Ewell Eng. & Constr. Co., Lakeland, Ocala rock base, Type-2 surf. tr., concrete box culverts and approaches to 2 bridges, 2 concrete bridges, 5 concrete box culverts 4 of which are of bridge length, etc., 0.204 mi. State Rd. 60, between Bartow and Lake Wales, F-033-1(3), Job 1611-201, Polk Co., $177,241; rock base with surf. tr., 4.582 mi. State Rds. S-704, between point approx. 4.6 mi. west of State Rd. 809 and State Rd. No. 809, S-320 (1), Job 9352-250 and State Proj. 9375-115, Palm Beach Co., $146,298.

from Faulk & Coleman Constr. Co., 4 Points Woodville Hy., Tallahassee, bit., 11.581 mi. State Rd. S-372 between Sopchoppy and Masher Island, Job 5951-150, Wakulla Co., $258,099; sand clay base with surf. tr., 4.16 mi. State Rd. S-173 between Bonifay and point approx. 4.2 mi. northeast, Job 5252-250, S-290 (1), Holmes Co., $70,911***from Marion Constr. Co., Ocala, limerock base, bit., 5 bridges 420 lin. ft. concrete slabs on treated timber pile bents, 4.694 mi. S-840, between State Rd. 29 and Hendry Co. line, State Proj. 0154-150, $157,356; reworking limerock base, new limerock base, asph. surf. 17.537 mi. State Rd. 44 between Crystal River and Inverness, Citrus Co., $247,169***from Geo. G. Tapper, Port St. Joe, bit., 2.061 mi. State Rd. S-22, between point just east of State Rd. 71 and point approx. 2 mi. northeast in Wewahitchka, S-312 (1), Job 5151-250, Gulf Co., $77,627***from Hubbard Constr. Co., Orlando, bit., 5 bridges 330 lin. ft. concrete slabs on concrete pile bents, 6.069 mi. Rd. S-706 between Rd. 7 and Road No. A1A, Job 9375-110, Palm Beach Co., $305,004***from A. B. Covell, DeFuniak Springs, clearing, grubbing, grading stabilizing roadbed, etc. 14.3 mi. State Rd. No. 30-A, between Phillips Inlet and point near Matheway Bridge, Job 4616-101, Bay Co., $234,251***from W. L. Cobb Constr. Co., 1102 N. 22 St., Tampa, bit. bridges 5.5 mi. State Rd. 64 between intersection Rds. 675 and 64 East of Sullivans Bridge and point 5.5 mi. East, Job No. 1314-101, Manatee Co., $179,952.

(Continued on page 72)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

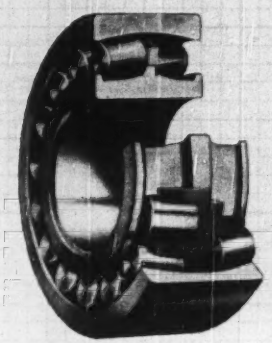
LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News Record
CD	Engineering News-Record Construction Daily



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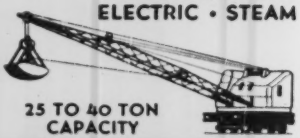

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(Continued from page 70)

from W. H. Armston Co. Inc., Dunedin, limerock base with bit. small drainage structures 7.839 mi. State Rds. 578 and 581, between Road 52 and St. Joseph via Darby, Jobs 1452-150 and 1454-150 Pasco Co., $178,658***from R. H. Wright & Son, Fort Lauderdale, b. conc., c. conc. curb and gutter, 3.095 mi. State Rd. S-826, between N.W. 1 Ave. and State Rd. 5 in North Miami, U-500 (1), Job 8751-250, Dade Co., $1,025,809***from Glen G. Searing Co., 2225 Broadway, Jacksonville, bit. road mix 1 concrete box culvert bridge, small drainage structures 5.443 mi. State Rd. S-117, between point approx. 2 mi. north of State Rd. 10 and point approx. 5.6 mi. north of State Rd. 10 on Jones Ave. and from intersection of Garden St. and Jones Ave. to point approx. 1.9 mi. east S-281 (1), Job 7257-250 and State Job 7257-150, Duval Co., $83,089***from Ray Constr. Co., Mobile Hwy., Pensacola, bit., 1,175 ft. concrete, steel bridge on treated timber piling, 7.991 mi. State Rd. S-99, between point approx. 2 mi. north of Barrineau Park and point approx. 10 mi. north of Barrineau Park, Job 4852-250, Escambia Co., $125,481***from Jas. H. Craggs Constr. Co., Ocala, wid'n. shoulders drainage structures, 16.571 mi. Rd. 5 between Flagler Co. line and St. Augustine, Job 7801-111 and wid'n. existing structures Rd. 5 between St. Augustine and Duval Co. line, St. Johns Co., $65,267***from Brinson Constr. Co., 51 St. and E. Broadway Ave., Tampa, c. conc., 2 concrete slab bridges on concrete piling, small drainage structures 9.283 mi. State Rd. 55, between Pinellas Park and point approx. 9.3 mi. north, Job 1515-204, F-025-1 (7), Pinellas Co., $1,079,024

from Williams & Stockton, 688 N.W. 54 St., Miami, b. conc., 1.26 mi. Rd. 5, between Dania Cut-off Canal and point approx. 1.26 mi. south, Job 8601-108, Broward Co., $137,867***from M. J. Carroll Constr. Co. Leesburg, bit., 4.793 mi. streets in Fort Clinch Park, Job 7400-104, Nassau Co., $72,409***from J. D. Manly Constr., Leesburg, b. conc., 11.737 mi. State Rd. 50, between Sumter Co. line and Clermont, Job 1102-104, 1107-105 and 1107-107, Lake Co., $828,129***from A. F. Rich Co., Monroe and Pershing Sts., Tallahassee, clearing, grubbing, grading bit., small drainage structures 4.281 mi. State Rd. 39, between Owensboro and State Rd. 50 east of Rital Jobs 1450-101 and 0853-150, Pasco and Hernando Counties, $189,565***from H. L. Mills Constr. Co., 3907 N.W. 27 Ave., Miami, rock base with surf. tr., small drainage structures, 3.771 mi. State Rd. S-820, between point approx. 2.7 mi. west of State Rd. 7 and point approx. 6.5 mi. west of State Rd. 7, S-92(2), Job 8651-201, $67,319***from W. M. Boogu Constr. Co., Marianna, base with surf. tr. drainage structures 5.373 mi. State Rd. S-274 between Chason and Altha, S-274 (1), Job 4750-250 and S.P. 4750-150, Calhoun Co., $78,525***from Smith Eng. & Constr. Co., W. Pensacola St., Pensacola, bit., 7.885 mi. State Rd. 10, between Milligan Overpass west of Crestview and point approx. 2.5 mi. east of Crestview, FI-006-1 (3), Job 5701-202, Okaloosa Co., $347,839.

from Troup Bros., Inc., 251 S. Dixie Hy., Miami, limerock base and bit., 13.813 mi. Rd. 707, between Martin Co. line and Fort Pierce, Job 9410-102, St. Lucie Co., $103,938***from L. M. White, Bronson, limerock base with bit., 7.097 mi. State Rd. 10 at Lee and point approx. 7 mi. north S-293 (2), Job 3551-250, Madison Co., $96,376***from Belcher Oil Co., 1217 Bisc. Blvd., Miami, rock base with b. conc., c. conc. curb gutter, conc. sidewalk, one 100 ft., concrete slab bridge on steel piling, 2.522 mi. U-501 (1), Job 8714-201, State Rd. 7 between N.W. 79 St. and N.W. 11 St. in Miami U-501 (1), Dade Co., $988,040***from Langston Constr. Co., Orlando, rock base with bit., 3.081 mi. State Rd. 50 between Lake Co. line and Tildenville, F 022-2 (3), Job 7505-203, Orange Co. $165,682***from L. H. Constr. Co., Orange Park, surf. tr., one 60 ft., bridge on concrete piling 7.546 mi. Job 8853-250, State Rd. S-5, between State Rd. 60 and State Rd. 510 S-292 (1), Job 8853-250, Indian River Co., $119,830***from Asphalt Paving Inc., 5876 Norwood Ave., Jacksonville, bit., one concrete box culvert bridge, 3.77 mi. State Rd. S-213 between Jackson Heights Rd. and Lenox Ave., S-309 (1), Job 7258-250 and State Job 7258-150, Duval Co., $67,391. CD 10/25.

Fla., West Miami—Town, c/o town clerk, First National Bank Bldg., Coral Gables, sidewalks on each street of town, from Ace Concrete Service Co., 2774 N. W. 24 St., Miami, $110,370 CD 10/27.

North Carolina—State Hy. & Pub. Wks. Comn., Raleigh rejected bids Oct. 24, traffic bound macad. and b. conc binder and surf. course 6.88 mi. from intersection N. C. 49 and 62 approx. 5.4 mi. south of Anderson, southwest to point on U. S. 70, 0.9 mi. east of Haw River. Proj. 5015, Alamance Co., L.B. $199,421. Est. $200,000-$225,000. CD 10/27, under L.B.

▲ **Pennsylvania**—State Hy. Dpt., Harrisburg, Nov. 10, build-up of existing pavement with crushed aggregate base and bit. surf. 22 f. wide, build-up and wid'n. of existing pavement and bridges with crushed aggregate base and bit. surf. 22 ft. and 34 ft. wide incl. exten. two rein.-con. structures and crushed aggregate base with bit. surf. 22 ft. wide 15,484 ft. L. R. 272 (8), from point at Franklin Corners intersecting L. R. 25013, north, Erie Co., from Mayer Bros. Constr. Co., 1227 W. 18 St., Erie, $172,114***rein.-con. pavement 18 ft. wide, bit. surf. crushed aggregate base 16 ft. wide, two concrete deck plate girder bridges and drainage excav. 6,949 ft. L. R. 902 (R-1), 32016 (R-2). T. R. 680 from point 3.4 mi. north of Blairsville Boro to point 0.2 mi. north of intersection of Route 32156, also from point 3 mi. northeast of Blairsville Boro to point 1¼ mi. west

of village of Blacklick, Indiana Co., from M. Bennett & Sons, 19 N. Sixth St., Indiana, $694,806*** construct crushed aggregate base with bit. surf. 20 ft. and variable in width, incl. exten. existing structure, build-up and wid'n. existing pavement with crushed aggregate base and bit. surf. 20 ft. wide, incl. constructing I-beam bridge 17,266 ft. L. R. 365, Spur 35028 (2), 57036 (3), T. R. 407 from point near Fleetville to point north of Lackawanna-Susquehanna Co. line, Lackawanna and Susquehanna Counties, from Wayne Concrete & Sand Works, Lake Ariel, $340,228 ***construct crushed aggregate base course with bit. surf. course 20 ft., 22 ft. and variable in width and incl. three rein.-con. structures, construct one I-beam bridge and one rein.-con. bridge 37,861 ft. L. R. 634, 49054 (1), 47002 (1), T. R. 45, from Montandon to point west of Mooresburg, Northumberland and Montour Counties, from Middlecreek Constr. Co., Middleburg, $94,904. CD 10/25.

Pennsylvania—State Hy. & Bridge Auth., Harrisburg, Nov. 10, reconstruct existing pavement with crushed stone base, plain c. conc. base, bit. surf. and rein.-con. pavement incl. traffic dividers and pedestrian islands for a completed width variable from 33 to 66.5 ft. extens. of an existing pedestrian underpass structure and construct an I-beam bridge, construct divided highway consisting of two 24 ft. lanes of rein.-con. pavement on each side of a concrete or earth divisor incl. two rein.-con. structures, a railroad overhead structure and exten. an existing structure, construct a separated east and west bound traffic lanes consising of rein.-con. pavement 24 ft. wide, 10.973 ft. L. R. 770 (1), 708 (4), T. R. 11, approach work from the west side of the North Bridge over Susquehanna River to Cap Hill Boro at 26 St., Cumberland Co., from J. Richard Nissley, Landisville, $930,371. CD 10/16.

CONTRACTS AWARDED

Ala., Anniston—City, paving Walnut Ave., to Henry Dear, Anniston $53,032. CD 12/13/44.

D. C., Wash.—Dist. of Columbia Hy. Dpt., paving Ridge Rd. S. E. from Minnesota Ave. to G St. S. E., to Corson & Gruman, 33 and K Sts. N. W., $129,711. Bids 10/30, awarded 11/7. CD 7/14/44.

Kansas—State Hy. Comn., Seneca, 1.783 mi. grading culverts 2.674 mi., Proj. 71-66 S 199 (2), Nemaha Co., to James Coffey, 927 High St., Topeka, $59,817. Bids 17. CD 10/13.

Mississippi—State Hy. Comn., Jackson, grading, drainage, culverts 7.836 mi. Miss. Hy. 4 between Ripley and Miss. Hy. 5, F. A. Secondary Proj. S 213 (4), Tippah Co., to E. C. Bookout Constr. Co., 310 N. 26 St., Birmingham, Ala., $79,043. Est. $110,000. Bids 10/24 awarded 10/25. CD 10/18.

Tex., Galena Park—City, addnl. asph. street paving. Owner builds. $85,000. W. R. Watts, city engr. CD 6/19.

EARTHWORK, WATERWAYS

BIDS ASKED

† Florida—B.A. 12/5—U. S. Eng., P. O. Box 4970, Jacksonville, Zone 7, test levees on Central and Southern Florida Flood Control Proj. north of Miami, near Tamiami Trail, Dade Co., Inv. No. CIVENG-08-123-51-20. CD 11/24/43.

CONTRACTS AWARDED

† North Dakota—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, emergency gate for Garrison Dam Proj., Inv. 1, to Phillips & Davis, Kenton, O., $139,099. Bids 8/31. CD 1/4, under LB.

AIRPORTS

BIDS ASKED

† Fla., Jacksonville—PLANT, etc.—B.A. 11/29—Dept. Navy Jacksonville, aircraft steam cleaning facilities at Naval Air Station Hangar 140, Spec. 25445. Plans deposit $10.

Miss., Gulfport—LIGHTING SYSTEM—B.A. 11/30—City, airport lighting sys. at Gulfport Municipal Airport. Plans deposit $10.

CONTRACTS AWARDED

† Va., Langley Field—INSTRUMENTATION CENTER, etc.—National Advisory Com. for Aeronautics, 1724 F St. N. W., Wash. D. C., instrumentation center and solid propeller shop, to Doyle & Russell, Inc., 823 SW. 2 St., Norfolk, $235,000.

PUBLIC BUILDINGS

BIDS ASKED

▲ N. Y., Freeport—SCHOOL—B.A. 11/29—Bd. Educ., Union Free School Dist. 9, High School, Pine St., school, $1,000,000. Plans deposit $50. F. P. Wiedersum, 240 Rockaway Ave., Valley Stream, archt. CD 2/21.

▲ N. Y., Morrisville—AUDITORIUM, etc.—B.A. 11/29—Bureau Contracts & Accounts, Albany, auditorium and gymnasium and central heating plant, $1,000,000. Plans deposit $30. CD 5/11.

Tenn., Cleveland—HOSPITAL—B.A. 12/1—Bradley Co., Cleveland, hospital. Extended date. Blanculli, Palm & Purnell, 501 Cherry St., Chattanooga, archts. CD 11/6.

Calif., San Francisco—LIBRARY—B.A. 12/5—State Div. Architecture, P. Wks. Bldg., Sacramento, (1) general

(Continued on page 75)

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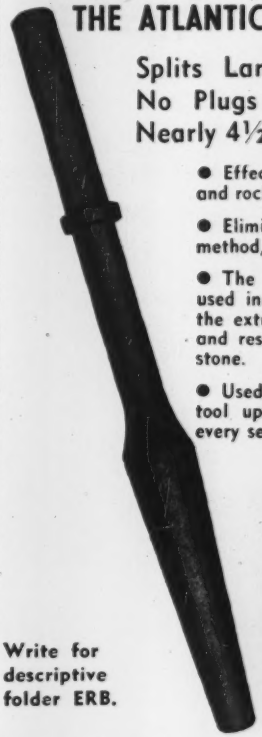

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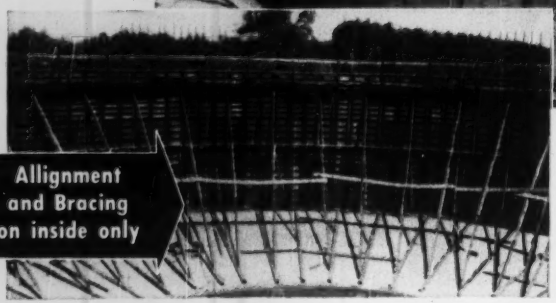

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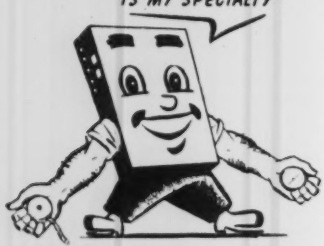

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(Continued from page 73)

(2) electric (3) plumbing (4) heating and ventilating (5) elevators 3 story, partial bsmnt., rein.-con. 41,000 sq. ft. library, at San Francisco State College. Plans deposit $25. Anson Boyd, Sacramento, state archt. CD 9/13/49.

B. C., West Vancouver—SCHOOL—B.A. 12/5—Secretary-Treasurer School Dist. 45, Hollyburn P. O., 2 story, 60x165 ft., concrete Senior High School. $400,000. Plans deposit $50. Sharp & Thompson, Berwick Pratt, Robson St., Vancouver, archts. CD 1/17/48.

Va., Norfolk—HOUSING—B.A. 12/6—Norfolk Redevelopment & Housing Auth., c/o Alfred M. Lublin, archt., 931 W. 21 St., 428 housing units, Proj. VA 6-6. Plans deposit $35. CD 4/18.

Puerto Rico—HOUSING—B.A. 12/6—Puerto Rico Housing Auth., at office Dr. Rafael Lopez Sicardo Development, Rio Piedras, 23 rein.-con. buildings, comprising 160 dwelling units, incl. utilities and site improvs. Proj. PR-3-20 at Aibonito. Plans deposit $50. CD 9/25.

Calif., Davis—STUDENT HEALTH—B.A. 12/7—Bd. Regents University of California, Berkeley, 1 story, 25,000 sq. ft., rein.-con. student health bldg. with reinforced brick exterior walls. Plans deposit $50. John C. Funk, 121 Beale St., San Francisco, archt. Isadore Thompson, 583 Market St., San Francisco, engr. CD 10/17.

▲ **N. J., Phillipsburg**—HOUSING—B.A. 12/7—Phillipsburg Housing Auth., Municipal Bldg., 150-unit low rent housing in Roseberry St., 17-acre site bordering Roseberry St. and adjacent to Heckman Terrace development, $1,944,000. CD 7/18.

† **La., Shreveport**—CHAPEL—B.A. 12/12—Veterans Admin. Munitions Bldg., Wash. 25, D. C., constr. chapel in Main Bldg. 1 for Veterans Admin. Center, Spec. 50168. Proj. 245b.

Fla., Miami—SCHOOL—B.A. 12/13—Dade County Bd. P. Instruction 275 N. W. 2 St.; North Miami High School, $748,000. Plans deposit $25. James W. Voorhies, 629 N. E. 64 St., archt. CD 10/13.

† **N. Y., Fort Jay**—FAMILY QUARTERS—B.A. 12/14—U. S. Eng., 80 Lafayette St., New York, Zone 13, family quarters, 5 bldgs. for 32 family units, No. Eng-30-075-51-298. $300,000-$500,000. Plans deposit $15.

▲ **Ala., Selma**—HOUSING—B.A. 12/15—Selma Housing Auth., Selma, 216 housing units, Proj. Ala. 8-2. Approx. $1,500,000. Plans deposit $50. Raymond Sizemore, 16 S. Hull St., Montgomery, archt. CD 2/14.

LOW BIDDERS

La., Lafayette—LAUNDRY—State Div. Admin., Baton Rouge, rejected bids Oct. 4 laundry at Lafayette Charity Hospital, L.B. $103,500. CD 10/12, under LB.

Md., Crisfield — SCHOOL — Somerset Co., Bd. Educ., Princess Anne, 1 and 2 story, 176x276 ft., brick, concrete block, concrete, steel White High School, from Spradlin Constr. Co., 145 Kennedy St. N. W., Wash., D. C., $519,634. Johannes & Murray, 855 Pershing Dr., Silver Spring, archts. CD 2/24.

Miss., Crystal Springs—FACTORY—City, Nov. 3, factory for Queensboro Transformer & Machy. Co., from A. W. Boleware, Crystal Springs. $74,828. CD 10/27.

▲ **Neb., Lincoln**—AUDITORIUM—City, City Hall, rejected bids Oct. 4, general contract auditorium, L.B. $1,711,656; plumbing and heating, ventilating, L.B. $497,700. CD 10/10.

N. Y., Bonneville—SCHOOL—Bd. Educ., Bonneville, rejected bids Sept. 29, Central School addn. L.B. $618,606. CD 10/10, under LB.

▲ **N. Y., Elmira**—HOUSING—Elmira Housing Auth., 346 Woodlawn Ave., rejected bids Sept. 26, 85 family apartment. Est. $1,000,000. Will re-advertise. CD 9/14.

† **N. Y., Patchogue**—LABORATORY—Brookhaven National Laboratory, P. O. Box 130, bids were not taken Oct. 18, but will be received in November, Engineering Laboratory Bldg. No. 480 alterations. $150,000-$180,000. CD 10/5.

N. C., Raleigh—AGRICULTURE—State of North Carolina, George B. Cherry, supt. Buildings & Grounds, Raleigh. Nov. 7, agriculture bldg. annex from T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, $865,000. CD 9/21.

Okla., Norman—GEOLOGY and MINERAL INDUSTRIES—Board of Regents, Norman, geology and mineral industries bldg. at University of Oklahoma, from Harmon Constr. Co., 100 S. Indiana St., Oklahoma City. Zone 4. $716,000. Est. $600,000. Valberg, Palmer & Valberg, 1323 N. Robinson St., Zone 3, Oklahoma City, archts. CD 11/2.

Pa., Blain—SCHOOL—Public School Building Auth., 1400 N. Cameron St., Harrisburg, Nov. 9, general contract consolidated school for Blain Union School Dist., from Raymond S. Mowery, 527 Mooreland Ave., Carlisle. $270,563. CD 10/19.

Pa., Woodville—LAUNDRY—General State Auth., 18 and Herr Sts., Harrisburg, general contract laundry addn. at Woodville State Hospital, from Landau Bros. Building Co., 125 First Ave., Pittsburgh, $98,916. Est. $85,000. CD 10/25.

▲ **Tex., Corpus Christi**—HOSPITAL—Driscoll Foundation Children's Charity Hospital, c/o Dr. I. W. Keys, Driscoll Bldg., Nov. 9, 5 story, 115 bed children's hospital, from Linbeck Constr. Co., 1532 Peden St., Houston. $2,877,402. Est. $2,500,000. CD 9/26.

▲ **Tex., Terrell**—DORMITORIES—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, Nov. 9, Wing E, men's dormitory and Wing F, women's dormitory, from T. C. Bateson Constr. Co., Irwin-Keasler Bldg., Dallas. $513,865, est. $610,000 and $574,935, est. $500,000 respectively. CD 10/6.

▲† **Alaska, Fort Richardson** — WAREHOUSES — U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, Nov. 7, two 200x1,000 ft. permanent storage warehouses in General Depot area, Inv. No. 595-507-51-5, from Morrison-Knudsen Co., Inc., and Peter Kietwit Sons Co., 1300 Aloha St., Seattle, Wash., $3,582,782. CD 10/9.

▲ **N. B., St. John**—HOSPITAL, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Lancaster Military Hospital addns., alterations, from Richard & B. R. Ryan Ltd., 1705 William St., Montreal, Que., $1,203,000. CD 10/4.

CONTRACTS AWARDED

▲ **Calif., San Francisco**—HOUSING—San Francisco Housing Auth., 440 Turk St., 208 unit Bernal Dwellings, incl. 22 three and four story rein.-con. buildings, to Louis C. Dunn, Inc., 799 Monadnock Bldg., $1,949,000. Bids 10/24. CD 10/31, under LB.

Conn., Norwalk—SCHOOL—City, City Hall, elementary school, Fillow St., to Thomas J. Riordon, Hoyt and Clark Sts., $584,000. Bids 10/9, awarded 10/17. (Correction—contractor) CD 10/18, under CA.

▲ **Mass., Randolph**—SCHOOL—Town, School Planning & Bldg. Comn., C. W. Freeman, chn., Junior Senior High School, Main St., to Hayes & Watkins Constr. Co., 12 Cottage S., Brockton, $1,022,020. Awarded 11/6. CD 11/6, under L.B.

Mich., Kalamazoo—COLLEGE—State, A. N. Langlus, dir., State Bldg. Dpt., 115 State Office Bldg., Lansing, 3 story, brick, steel, 100,000 sq. ft. Western Michigan College of Education, incl. admin. and classroom bldg., to M. C. J. Billingham, 211 Woodward St., $981,285. Bids 10/31. CD 11/9, under L.B.

N. J., Morristown—SCHOOL—Bd. Educ., Morristown, Washington School addn., to Becker Constr. Co., 361 Grove St., Newark, $519,227. Bids 9/11, awarded 10/23. CD 9/15, under LB.

N. Y., Levittown—SCHOOL—Bd. Educ., Union Free School Dist. 51, Levittown, Northside Grade School, Kingfisher Lane, to Scarsdale Constr. Corp., 304 Ardsley Rd., Scarsdale, $549,650. Bids 8/28. CD 8/17.

Okla., Norman—CLASSROOM, etc.—Bd. of Regents, Norman, social science classroom bldg. at University, to Secor Building Co., Plaza Court Bldg., Oklahoma City, Zone 3, $378,395***commissary and cold storage plant, to Bailey Constr. Co., Norman, $296,456***central air conditioning plant, to Lippert Bros., Inc., 2800 N. Santa Fe St., Oklahoma City, Zone 5, $66,500. Grand total $741,351. Bids 11/7, awarded 11/8. CD 10/31.

▲ **Tenn., Knoxville**—HOUSING—Knoxville Housing Auth., c/o contractor, Lonsdale Homes Housing, to John A. Johnson & Son, Warehouse Rd., Oak Ridge, $2,697,000. Bids 10/27. CD 11/1, under LB.

▲ **Tex., Amarillo** — HOSPITAL — Potter Co., Amarillo, 100-bed hospital addn. and nurses home, to Walter E. Wirtz, Amarillo. $910,000 and $372,710 respectively. Bids 10/30. CD 11/6, under LB.

Utah, Salt Lake City—HIGH SCHOOL—Bd. Educ., 440 E. 1st South St., general contract Southeast Junior High School, to Paulsen Const. Co., P.O. Box 2514, $885,400. Bids 11/2. CD 10/25, under LB.

▲ **Puerto Rico**—HOUSING—Municipal Housing Auth. of the Capitol Puerto, Caserio San Antonio, Avenida Fernandez Juncos, Puerta de Pierra. Proj. PR-2-9-3, 556 dwelling units in 26 rein.-con. apartments, incl. recreation park, part of Luis Llores Torres low-renting housing, to Mendez, Grillasca, Nolla, Galip & Marquez, Inc., San Juan. $2,397,069. Bids 10/31. CD 10/25.

Ont., Fort William—FREIGHT SHED, etc.—Canadian National Rys., J. L. Charles, C. E. engr., Winnipeg Man., freight shed and office bldg., Vicker and John Sts., to Clayton Co. Ltd. 108 Syndicate Ave. N., Approx $170,000. Bids 9/28. CD 9/15, under Industrial Bldgs.

Que., Joliette—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. post office exten., addn., to Alphonse Gratton Inc., 3440 Shuter St., Montreal, Approx. $350,000. G. Brault c/o owner, engr.

COMMERCIAL BUILDINGS

BIDS ASKED

Mich., Detroit—CONVENT—Bids Asked—St. Veronica R. C. Parish, E. Universal Dr., East Detroit, (selected list bidders), 2 story, brick convent addn., E. Universal Dr. $275,000. McGrath & Dykman, 2631 Woodward St., archts.

SOON LETS CONTRACT

Mo., Florissant—SCHOOL—Villa Du Chesne Catholic Parish, c/o Rev. Julian E. Meyer, pastor, Florissant, soon lets contract 2 story, bsmnt., 61x122 ft. and 57x118 ft., brick, rein.-con. parochial school and chapel, Old Florissant Rd., about 900 ft. north of US 66, Henry P. Hess, 4005 W. Florissant Ave., St. Louis, Zone 7, archt.

Tex., San Antonio—SCIENCE—St. Marys University, Cincinnati Ave., soon lets contract 3 story, bsmnt., 66x178 ft., brick, hollow tile ext., concrete, steel science bldg. concrete slab and pier fdn. $350,000. Julian & White, 2901 Transit Tower, archts., Frank T. Drought, 117 W. Pecan St., and Martin E. Staley, 31 Chandler Bldg., engrs. CD 7/24.

LOW BIDDERS

Fla., Surfside—APARTMENT DEVELOPMENT—Surf Harbor Inc., c/o Frank Wyatt Woods, archt., 604 Lincoln Rd. Bldg., Miami Beach, rejected bids apartment development. $300,000. CD 11/9, under LB.

CONTRACTS AWARDED

Calif., Redwood City—HOTEL—McKeller & Kelly Constr. Co., 1890 El Camino Real, Redwood City, hotel. Owner builds, $400,000.

Calif., San Lorenzo—RESIDENCES—Vallin Homes Inc., 1901 Foothill Blvd., 47 residences, Marquete, Tulane and Mercer Aves., Purdue and Farnsworth Sts. Owner builds. $336,050.

Fla., Miami Beach—APARTMENT DEVELOPMENT—Deluxe Apartments, Inc., c/o contractor, apartment development, to Beaconsfeld Builders, Inc., 859 Biscayne St. $300,000. Bids 11/6. CD 11/2.

Ky., Louisville—RESIDENCES—Progressive Home, Inc., 329 Citizens Bldg., Zone 2, sixty-six brick veneer residences, near here, to Roger Walton, 929 Orchard Dr., $554,000.

Ky., St. Matthews (br. Louisville)—RESIDENCES—Cooper Constr. Co., Manchester Rd., sixty 1½ story, brick veneer residences. Owner builds, $720,000.

Mich., Detroit—HOMES—C. Bruton Realty Co., 15100 Fenkel St., 50 brick home units, Glastonbury Ave., to Sesson Brothers, 17344 Seven Mile Rd. W. Approx. $500,000.

▲ **Mich., Detroit**—HOUSING—Dexter Petoskey Corp., 9510 Brace St., 2 story, 290 brick veneer housing units, Brace, Faust and Greenview. Owner builds, $1,800,000.

▲ **Mich., Detroit**—HOUSING—Practical Home Builders, Inc., 13440 Seven Mile Rd. W., twelve bldgs., 292 housing units, Chicago Ave. West and Southfield Rd. section. Owner builds, $2,000,000.

Mich., St. Joseph—SCHOOL—Trinity Lutheran Parish, Court and Pearl Sts., 2 story, brick, steel school, to John Traff Constr. Co., 3735 N. Clark St., Chicago 13, Ill., $594,000. CD 10/30.

Mo., St. Louis—OFFICE—7-Up Company of St. Louis, H. C. Grigg, pres., 1316 Delmar Blvd., Zone 3, 3 story, bsmnt., Bedford stone, granite, rein.-con., 10,500 sq. ft. office, 13 St. and Delmar Blvd., to Murch-Jarvis Co., Inc., 718 Locust St., Zone 1. Approx. $900,000. Hugo K. Graf, 2825 Olive St., Zone 3, archt.

Mo., St. Louis—OFFICE—Hussman Refrigerator Co., 2401 N. Leffingwell Ave., Zone 6, 2 story, part bsmnt., 121x122 ft., brick, steel, concrete office, 6301 N. Broadway, to Fruin-Colnon Contg. Co., 1706 Olive St., Zone 3. Hugo K. Graf, 2825 Olive St., Zone 3, archt.

▲ **Tex., Dallas**—OFFICE—Leo F. Corrigan, Mercantile Bank Bldg., 7 story bsmnt. office, to J. W. Bateson Co., Inc., Irwin-Keasler Bldg., $3,890,000. CD 11/9, under LB.

Alta., Edmonton—THEATRE—Famous Players Canadian Corp. Ltd., Edmonton, 2 story, 80x149 ft. rein.-con. theatre, to C. H. Witham Ltd., 10570 113 St. Approx. $400,000. Stanley & Stanley, 10012 102 St., archts. Awarded 11/3. CD 3/16, under LB.

INDUSTRIAL BUILDINGS

BIDS ASKED

Que., Coaticook—FACTORY—Bids Asked—J. A. Pinatel, Sr. Achambault Ave., Joliette, 1 story, bsmnt., concrete L-shaped factory exten., for Coaticook Textiles Ltd., 380 Water St. Approx. $85,000. R. & G. Chambonneau, 6260 Cote des Neyes Rd., Montreal, archts.

SOON LETS CONTRACT

Calif., Sacramento—WAREHOUSE—Sears Roebuck & Co., c/o F. Thomas Collins, engr., 244 Milton Dr., San Gabriel, soon lets contract 12,000 sq. ft., pre-cast concrete warehouse addn., concrete truck aprons, etc. Approx. $68,000.

Calif., San Mateo—WAREHOUSE—Sears, Roebuck & Co., c/o F. Thomas Collins, engr., 244 Milton Dr., San Gabriel, soon lets contract 16,000 sq. ft., pre-cast concrete warehouse. Approx. $68,000.

Fla., Orlando—PLANT—Orange Industries, c/o Richard Boone Rogers, 14 E. Church St., soon lets contract mfg. plant. Approx. $150,000. CD 8/21.

LOW BIDDERS

Va., Norfolk—WAREHOUSE—Economy Food Stores, Inc., c/o A. Ray Pentecost, Jr., archt., Colonial Ave. and 21 St., warehouse from Carter-Hassell Contg. Co., Waco and Naval Base Rd., $86,900. CD 10/27.

CONTRACTS AWARDED

Ala., Mobile—PLANT—Haas-Davis Co., c/o Fred W. Clarke, archt., Merchants Bank Bldg., meat packing plant addn., to J. F. Pate Constr. Co., Box 375, $100,000.

Calif., San Francisco—WAREHOUSE—Macy's of San Francisco and O'Farrell Sts., 3 story warehouse to Dinwiddie Constr. Co., 210 Crocker Bldg., Approx. $450,000. Ward & Bowes, 215 Leidesdorf St., archts.

Fla., Daytona Beach—REPAIR SHOP—Florida Power & Light Co., c/o contractor, transformer repair shop, to Carlson Constr. Co. Daytona Beach, $72,800.

Ky., Bardstown—WAREHOUSES—Schenley Distilleries, 26 E. 6 St., Cincinnati, O., 2 whiskey warehouses to Alfred J. Lubrecht, 510 Keene St., Covington, $300,000. Harold N. Hermann & Assoc., Engineers Bldg., 617 Vine St., Cincinnati, O., archts.

Ky., Louisville—CALF STALLS, etc—Bourbon Stock Yards, E. Market St., concrete calf stalls and loading docks, to E. E. Garst, 325 W. Ormsby St., Zone 5, $75,000. Awarded 10/31. D. X. Murphy & Bros., Louisville Trust Bldg., Zone 2, engrs and archts.

La., New Orleans—WAREHOUSE—Walther Bros. Realty Co., c/o contractor, warehouse, to B. L. Ludwig Constr. Co., 1350 Jefferson Hy., $186,696.

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Mich., Detroit—PLANT—Amesterdam Press, 467 Amesterdam St., 1 story, 10,000 sq. ft. plant addn., alterations, Amesterdam St., to George W. Auch Co., 3646 Mt. Eliot St., $68,000, Frank Barcus, 2506 Blaine St., archt.

O., Columbus—WAREHOUSE, etc—Surface Combustion Corp., 375 Dorr St., Toledo, 100,000 sq. ft. warehouse factory addn., 30,000 sq. ft. undercover parking, to R. E. Setterlin & Sons Co., 1030 W. Third Ave., Zone 15. Approx. $750,000. Dan E. Carmichael, 5 E. Long St., Zone 15, engr. and archt.

Ont., Hamilton—PLANT UNIT—Dominion Fasteners Ltd., 29 Harriet St., 1 story, 62 x 142 ft., brick, concrete plant unit, to W. H. Cooper Constr. Co. Ltd., Hunter and Hughson Sts., Approx. $125,000. Bids 8/8. CD 8/4.

UNCLASSIFIED

BIDS ASKED

California—HIGHWAY LIGHTING, etc.—B.A. 12/7—State Div. Hys. 120 S. Spring St., Los Angeles, hy. lighting and illuminated sign sys. on Hollywood Freeway between Western and Virgil Aves., Los Angeles, Los Angeles Co. G. T. McCoy, Sacramento, state hy. engr.

LOW BIDDERS

Ga., Cordele—SWIMMING POOL, etc.—State Dpt. Parks, State Capitol, Atlanta, cancelled bids to have been opened Nov. 13, swimming pool and bath house at Georgia Veterans Memorial State Park, $68,000 CD 10/11.

Pennsylvania—DAM—General State Auth., 18 and Herr Sts., Harrisburg, Nov. 9, dam for formation of recreational lake in Laurel Hill State Park, Somerset Co., from Ranallo Constr. Co., 4723 Baptist Rd., Pittsburgh, Zone 27, $186,276. Est. $140,000. CD 10/25.

† **Texas**—TRANSMISSION LINE, etc.—Southwestern Power Admin., Dpt. Interior, D. G. Wright, admin. Box 1619, Tulsa, Okla., Nov. 1, 24 mi. 66 kv H-frame transmission line, switch station, 69-KV, at Center, Shelby Co. from Guthrie Electric Const Co. Inc., Slattery Bldg., Shreveport, La. $277,675. Est. $225,000

CONTRACTS AWARDED

Ala., Greenville—MOTOR COURT—V. C. Stabler & Buzzy Griffith Greenville, motor court, Owner builds, $65,000.

South Dakota—RURAL DISTRIBUTION LINES—Tri-County Electric Assn., Plankinton, 160.5 mi. rural distr. lines, Aurora, Brule, Buffalo and Jerauld Counties to Douglas Contractors, Keeline Bldg., Omaha, Neb. $459,289. Bids 10/25. CD 10/17.

Tex., Gainesville—PARK PLAYGROUNDS—Sweeney Diabetic Foundation, Gainesville, park playgrounds, recreation, own forces. Approx. $70,000.

Tex., Nixon—GAS DISTRIBUTION LINES—City, natural gas distr. lines, own forces. $55,000. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, engrs. CD 9/7/48.

PROPOSED PROJECTS

WATER SUPPLY

Fla., Tallahassee—City, imprv., exten. WW sys. $450,000. Smith & Gillespie, Roberts Bldg., Jacksonville, Zone 1, consult. engrs.

Idaho, Twin Falls—City, City Hall, voted bonds, modernization water sys. $425,000. Burns & McDonnell Eng. Co., P. O. Box 7088, Kansas City, Mo., consult engrs. CD 12/21/44.

▲ **Miss., Tupelo**—City, voted bonds, WW and sanitary sewer imprvs. $1,050,000. CD 10/12.

Okla., Hominy—City, J. B. Walker, mayor, Hominy, water distr. sys. imprvs., supply lines, treatment plant, intake works and spillway. $201,346. C. H. Guerney & Co., 1414 N. Robinson St., Oklahoma City, Zone 3, consult. engrs. CD 10/16.

Tex., Freeport—Brazos River Harbor Navigation Dist., Freeport, bond election Dec. 15, water supply. $200,000. CD 6/5.

▲ **Tex., Houston**—City, City Hall, 900 Brazos St., San Jacinto Dam Projects, construct San Jacinto Dam proper, on San Jacinto River, near Sheiton. $7,500,000; filter plant, $4,500,000; water supply lines, $2,267,000; lining water canal between dam and city limits with concrete, $1,286,000; reservoir, $1,585,000; project misc. exten. and betterments, $1,500,000; pump plant, $375,000; relocating railway and pipe lines now in reservoir area, $989,000. Ambursen Eng. Corp., 296 Madison Ave., New York, N. Y., engrs. (design and supervise constr.) Horner & Shifrin, Shell Bldg., St. Louis, Mo., Lorenz G. Straub, Minneapolis, Minn., and J. Niels Thompson, 2403 Tower Dr., Austin, consult. engrs. CD 9/1.

Wash., Yakima—City, City Hall, filtration plant, $500,000. Cornell, Howland, Hayes & Merryfield, 1600 Western St., Corvallis, Ore., consult. engrs. A. B. Collins city engr. CD 2/10/44.

Wyo., Thermopolis—Town, water sys. imprvs., extens. $390,000. Robert L. Streeter, P. O. Box 2010, Casper, engr. and archt.

Que., Senneterre—Municipality, A. Levesque, secy., water and sewer services xtns. Approx. $350,000. Dineen, Phillips & Roberts, 200 Bay St., Ottawa, Ont., engrs.

SEWERS, WASTE DISPOSAL

Calif., Angeles Camp—City, voted $135,000 bonds, sewerage sys. CD 10/8/45.

Calif., San Jacinto—City Council, voted $115,000 bonds, sewerage sys. addns. Koenig & Koenig, Rowan Bldg., Los Angeles, consult. engrs. CD 10/2.

Idaho, Coeur d' Alene—City, City Hall, storm sewers, $215,000. J. H. Latimore, city engr. CD 1/26/49.

Idaho, Marsing—City, City Hall, sewer facilities. $105,462. M. V. Davenport, Union Bldg., Caldwell, consult. engr. CD 6/22.

▲ **Ill., Cicero**—City, City Hall, sewerage sys. exten. $1,750,000. De Leuw, Cather & Co., 150 N. Wacker Dr., Chicago, Zone 6, consult. engrs. CD 11/21/45.

N. D., Bismarck—City, storm sewers, $139,000. Lium & Burdick, 316 Cambridge St., Grand Forks, consult. engrs.

Okla., Hominy—City, J. B. Walker, mayor, Hominy, sewage treatment plant, $110,900. C. H. Guerney & Co., 1414 N. Robinson St., Oklahoma City, Zone 3, consult. engr.

S. D., Watertown—City, storm sewers, $461,676. Scott Eng. Co., Watertown, consult. engr.

▲ **Tex., Brownsville**—City, sanitary sewage disposal plant, $500,000; sanitary sewer collection sys. exten. and overhauling existing sys. $566,000; drainage open and closed, $200,000. E. W. Wats, c/o owner, engr. CD 7/30/48.

▲ **Va., Arlington**—Arlington Co., Court House, voted bonds, sewage treatment facilities, $2,617,000. CD 10/12.

Wyo., Thermopolis—Town, sewerage sys. $150,000: Robert L. Streeter, P. O. Box 2010, Casper, engr. and archt.

BRIDGES

▲ **Ky., Louisville**—City, City Hall, voted bonds, grade crossing elimination, $2,850,000. CD 10/31.

Tex., Brownsville—City, bridge, $200,000. E. W. Watts, c/o owner, engr.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., 3,000 ft. 4-lane rein.-con. vehicle bridge across Trinity River. $1,174,000. Koch & Fowler, 3900 Lemmon St., consult. engrs.

Tex., Freeport—Brazos River Harbor Navigation Dist., Freeport, bond election Dec. 15, underpass. $100,000. J. Russell Wait, c/o owner, engr. CD 6/5.

Alta., Edmonton—City, G. S. Docherty, clk., by-law defeated by ratepayers, four-lane vehicular traffic deck on high level bridge, $500,000. CD 10/23.

STREETS AND ROADS

Ga., Valdosta—City, $150,000 bond election Dec. 4, street paving.

▲ **Ky., Louisville**—City, City Hall, voted bonds major street and traffic imprvs. $5,000,000. CD 10/31.

Tex., Freeport—Brazos River Harbor Navigation Dist., Freeport, bond election Dec. 15, road constr. paving. $130,000. J. Russell Wait, c/o owner, engr. CD 6/5.

▲ **Tex., Brownsville**—City, street paving. $1,100,000. E. W. Watts, c/o owner, engr.

Washington—State Hy. Dpt., Olympia,
Grays Harbor and Pacific Counties—5 mi. exten. of Raymond-Toxeland Rd. $250,000. W. A. Bugge, state hy. dir.

▲ **Alta., Edmonton**—City, G. S. Docherty, clk., approved by ratepayers paving streets, bus routes and others. $1,255,095. CD 10/19.

Ont., Hamilton—Municipality, widn. John Arkledun Mountain approach. $850,000. W. L. McFaul, City Hall, city engr. CD 6/6/47

EARTHWORK, WATERWAYS

Tex., Freeport—Brazos River Harbor Navigation Dist., Freeport, bond election Dec. 15, levees. $120,000. J. Russell Wait, c/o owner, engr. CD 3/24.

LATIN AMERICA

Mexico, Mexico City—I.P.N., c/o Srta. de Educacion Publica, Argentina, 136, Mexico City, plans, Polytechnical schools City, 20 units. $2,500,000.

Mexico, Mexico City—L. N., Plaza Reforma, 1, Mexico City, plans by Mario Pani, theatre. $300,000. Paseo de la Reforma, 503, Mexico City, consult. engr.

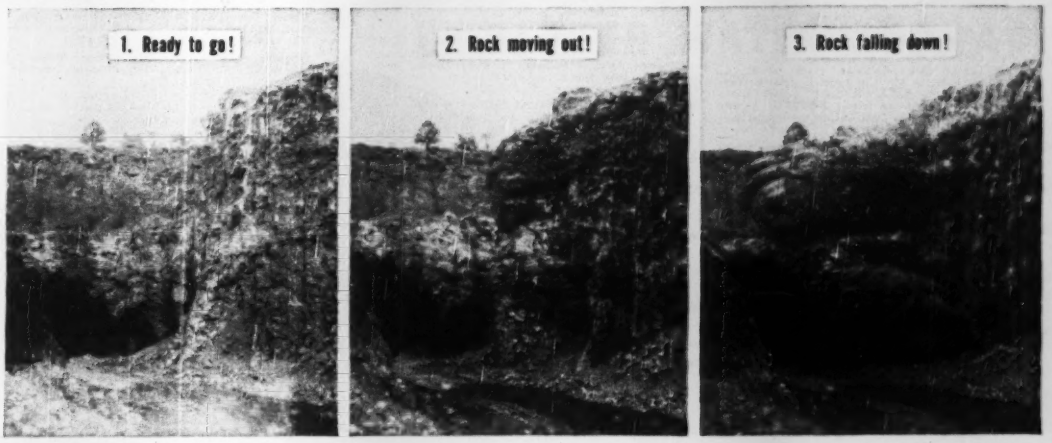
Mexico, Mexico City—Adolfo Reyes del Pozo, Saltillo, 48, Mexico City, plans safes and strong boxes factory. $300,000.

Mexico, Mexico City—Christian and Jack del Monte, Alamo, 52-1 Mexico City, plans diamond cutting and diamond tool factory. $250,000.

Mexico, Mexico City—Robert Stadelman, Laboratories Rosta, Heriberto Frias, 545, Col. Narvarte, Mexico city, plans surgery catgut factory. $250,000.

(Continued on page 78)

No Wasted Gases Spouting In This Shot!



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(Continued from page 76)

PUBLIC BUILDINGS

Ark., Magnolia—HOUSING—Magnolia Housing Auth., Charles S. Wilkins, chn., plans by Ginnochio & Cromwell, Hall Bldg., Little Rock, 100-unit brick, concrete housing. $600,000.

▲ **Calif., Corcoran**—SCHOOLS—Corcoran Union Elementary School Dist., Corcoran, plans by H. L. Gogerty, 3123 W. 8 St., Los Angeles, John C. Fremont School addn., $353,700; South School addn., $386,700; Central School addn., $292,000; Airport School addn., $485,900; Corcoran Junior High School, $662,700. CD 10/26.

Calif., Fresno—SCHOOL—McKinley Elementary School Dist., 1137 Arthur St., 17-classroom school. Approx. $250,000. CD 7/13.

Calif., Pacific Grove—SCHOOL—Moss Landing Elementary School Dist., 747 Short St., voted $386,600 bonds, school. CD 3/20/47.

Calif., Redlands—SCHOOLS—Redlands High School Dist., Redlands, voted $525,000 bonds Oct. 27, Junior High School in Yucaipa and Redlands Junior and Senior High School improvs.

Calif., Sacramento—SCHOOLS—Pacific School Dist., 2965 Gowan Way, plans by Koblik & Fisher, 2203 13 St., Sacramento, 2 elementary schools, $627,700. CD 10/26.

▲ **Calif., Whittier**—SCHOOL—Whittier Union High School Dist., 610 W. Philadelphia St., plans by William H. Harrison, 816 W. 5 St., Los Angeles, 1 and 2 story, reinforced brick Whittier High School 2, $1,582,000. CD 3/8.

Calif., Woodland—HOUSING—Yolo County Housing Auth., Woodland, plans by Barovetto & Thomas, 620½ Eye St., Sacramento, 60 low rent housing units. Approx. $250,000.

▲ **Colo., Greeley**—MUSIC, THEATER, etc.—Colorado State College of Educ., Greeley, plans by F. W. Ireland, campus, Colorado State College, Greeley, 2 story, bsmnt., modern X-shaped music, theater and administration bldg. $1,000,000. CD 9/26/45.

Conn., Bridgeport—SCHOOL—City, Dpt. Educ., City Hall, brick, steel school, Madison Ave. near Vincellette St. $350,000.

Conn., South Windsor—SCHOOL—Town, C. E. Nicholson, chn. School comn., plans by Willard Wilkins, 945 Asylum St., Hartford, brick, steel, concrete school, Wapping St., $550,000. CD 9/2/49.

Idaho, Emmett—SCHOOL—School Bd., Emmett, plans by Whitehouse & Price, Hutton Bldg., Spokane, Wash., high school, $450,000. CD 10/31.

▲ **Ill., Benton**—HOSPITAL—Franklin Hospital Dist., Benton, plans by Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, hospital, $2,000,000. CD 8/8.

Ill., Colfax—SCHOOL—Bd. Educ., Octavia School Dist., Colfax, plans by Berger, Kelley & Assocs., Lincoln Bldg., Champaign, brick, concrete, steel, stone Senior High School, $750,000. CD 9/8, under Ill., Octavia.

Ill., Jacksonville—SCHOOL—Bd. Educ., Jacksonville School Dist., c/o Supt. Schools voted $955,000 bonds, school, $460,000; Franklin School addn., $44,000; Jefferson School addn., $146,000; high school gymnasium $305,000. Smith, Kratz & Strong, 101 S. Broadway, Urbana, archts., Ralph Leyeman, Jacksonville, archt. for gymnasium. CD 9/15.

Ia., Waukon—SCHOOL—Bd. Educ., voted $290,000 bonds Oct. 26, school $325,000.

La., Church Point—DWELLING—Church Point Housing Auth., A. F. David, chn., plans by Joseph H. Gayford, 722 Neil P. Anderson Bldg., Ft. Worth, Tex., 100 dwelling units. $850,000.

La., Gueydan—DWELLING—Gueydan Housing Auth., John J. Marin Jr., chn., Gueydan, plans by Joseph H. Gayford, 722 Neil P. Anderson Bldg., Ft. Worth, Tex., 50 dwelling units. $425,000.

La., Marksville—DWELLING—Marksville Housing Auth., Maxwell J. Bordelon, chn., plans by Joseph H. Gayford, 722 Neil P. Anderson Bldg., Ft. Worth, Tex., 100 dwelling units. $850,000.

▲ **La., Oakdale**—DWELLING—Oakdale Housing Auth., Viteeler Fuselier, chn., plans by Joseph H. Gaylord, 722 Neil P. Anderson Bldg., Ft. Worth, Tex., 200 dwelling units. $1,700,000.

Minn., Bloomington (Minneapolis P. O.)—SCHOOL—Bd. Educ., School Dist. 142, H. G. Olsen, supt., plans by E. D. Corwin, E. 818 First National Bank Bldg., St. Paul, 1 story, irregular shape school, 102 St. and Second Ave. S. $800,000. CD 8/3.

N. Rahway—SCHOOL—Bd. Educ., Rahway, plans by Fred A. Elsasser, 2011 Morris Ave., Union, 2 story school, on site adjoining high school, at 1012 Madison Ave. $400,000.

N. M., Farmington—HOSPITAL—San Juan County Hospital Assn., Farmington, plans by Max Flatow, 1820 Campus Blvd., Albuquerque, hospital. $300,000.

N. Y., Hyde Park—SCHOOL—Central School Dist., Hyde Park, plans by Perkins & Will, 309 W. Jackson St., Chicago 6, Ill., school. $600,000.

N. D., Williston—SCHOOL—Bd. Educ., Williston, $275,000 bond election Nov. 21, school. S. T. De Remer, 323½ De Mers Ave., Grand Forks, archt.

O., Cuyahoga Falls—CITY HALL—City Hall Comn., Cuyahoga Falls, 120x220 ft. city hall modified colonial structures, Second St. between Stow Ave. and Oakwood Blvd. $550,000. CD 10/11/48.

Okla., Enid—CLAY HALL—Phillips University, Enid, plans by M. N. Wheeler Bass Bldg., 48 room addn. to Clay Hall girls dormitory. $300,000.

Okla., Ponca City—POWER PLANT—City voted bonds, addnl. generator unit at municipal light plant. $510,000. Fred Fellows, city engr. CD 10/25.

Okla., Wister—HOTEL, etc.—State Planning & Resources Bd., Capitol, Oklahoma City, Zone 5, hotel and lodge to be built at Lake Wister. $350,000. Peyton Smith, c/o owner, engr.

Pa., Cambridge Springs—HIGH SCHOOL—School Dist., Cambridge Springs, c/o J. J. Griffith, R. D. 1, Cambridge Springs, plans by Freeburg & Lindquist, 16 E. 4 St., Jamestown, N. Y., 2 story, bsmnt., brick, block, Junior-Senior High School. $555,000.

▲ **Pa., Glenshaw**—HIGH SCHOOL—School Dist., Shaler Twp., Glenshaw, plans by Charles M. & Edward Stotz, Bessemer Bldg., Pittsburgh, 2 story bsmnt., brick, concrete, steel frame Junior-Senior High School, Mt. Royal Blvd., near here. $1,300,000.

Pa., McKeesport—HOUSING—McKeesport Housing Auth., McKeesport, plans by Celli & Flynn, 336 5 Ave., 2 story, bsmnt., frame, Federal Housing $975,000. CD 7/23/45.

▲ **Pa., West Middlesex**—SCHOOL—Consolidated School Dists. of West Middlesex Boro, Shenango and Lackawanna Twps., c/o R. L. James, secy., R. D. 1, Pulaski, plans by The Thayer Co., Greer Bldg., New Castle, 2 story bsmnt., brick, steel frame consolidated school. $1,027,000.

▲ **Tex., Austin**—CLASSROOM—Bd. Regents, D. K. Woodward, chn., University of Texas, Austin, plans by Staub & Rather, 2814 Virginia Ave., Houston, 4 story classroom bldg., air-conditioned. $3,000,000. F. J. Niven, 3908 Main St., Houston, consult. engr. CD 4/6/49.

Tex., Brady—SCHOOL—Brady Independent School Dist., Brady, voted bonds, gymnasium, elementary school, class room addns. $400,000. Avery, Pierce & Norris, Midland, archts. CD 10/16.

▲ **Tex., Brownsville**—POWER PLANT, etc.—City, doubling capacity electric power plant, $2,600,000; power distr. lines, $400,000. E. W. Watts, c/o owner, engr.

Tex., Caldwell—POWER PLANT—City voted bonds, electric power plant enlargement, reconditioning. $225,000.

Tex., Dalhart—SCHOOLS—Dalhart Independent School Dist., Dalhart, voted bonds, high school, $550,000; Junior High School completion, $250,000. Rittenberry & Rittenberry, 1000 Fisk Bldg., Amarillo, archts.

Tex., Ennis—HOUSING—Ennis Housing Auth., Ennis, plans by Broad & Nelson, 505 N. Ervay St., Dallas, 90 low-cost housing units. $630,000. Paul G. Bentley, 1042 Natl. City Bldg., Dallas, consult. engr. CD 3/30.

Tex., Hull—GYMNASIUM—INDUSTRIAL ARTS—Hull-Daisetta School Dist., Hull, voted bonds Oct. 28, gymnasium-industrial arts. $265,000.

▲ **Va., Richmond**—MUSEUM OF FINE ARTS—State of Virginia, Richmond, Virginia Museum of Fine Arts addn., Boulevard. $1,390,000.

Wash., Cathlamet—SCHOOL—School Bd., Cathlamet, plans by W. H. Rothe, Liberty Bldg., Yakima, school, $300,000. CD 10/31.

Wis., Kenosha—HOME ECONOMICS—City, City Hall, plans by Childs & Smith 20 N. Wacker St., Chicago, 6, Ill., home economics bldg. $250,000.

▲ **Alaska, Juneau**—HOUSING—Alaska Housing Auth., Juneau, plans by Foss, Malcom & Olsen, Goldstein Bldg., and Miller & Ahlson, 807 4 Ave., Seattle, Wash., 150 housing units. $1,500,000. CD 9/30/49.

▲ **Alaska Ketchikan**—HOUSING—Alaska Housing Auth., Juneau, plans by Foss, Malcom & Olsen, Goldstein Bldg., Juneau and Miller & Ahlson, 807 4 Ave., Seattle 4, Wash., 75 housing units. $1,000,000 CD 2/24.

▲ **Alta., Edmonton**—HOSPITAL—Royal Alexandra Hospital, Dr. D. R. Easton, supt., Edmonton, plans by Govan, Ferguson, Lindsay, Kaminker, Maw, Langley & Keenleyside, 515 Jarvis St., Toronto, Ont., hospital extens., modernization incl. 100-bed maternity hospital, $1,000,000; repairs and modernization in main bldg., incl. 4 story addn., $1,200,000; and tunnel between structures, $35,000. Total approx. $2,235,000. CD 7/14, under Commercial Bldgs.

▲ **Ont., Owen Sound**—HOSPITAL—Owen Sound General & Marine Hospital, J. G. Clark, administrator, Owen Sound, plans by Craig & Madill, 20 St. Clair Ave. W., Toronto, 89 to 185 bed in new brick wing hospital expansion. $1,500,000. CD 5/9/46.

Ont., Toronto—COLLEGIATE INSTITUTE—Etobicoke Bd. Educ., D. L. Edmont, secy., Montgomery Rd., Islington, Toronto, plans by Page & Steele, 22 Clair Ave. W., Etobicoke Collegiate Institute. $850,000.

▲ **Sask., Saskatoon**—SCIENCE SERVICE—Govt. of Canada, Hunter Bldg., Ottawa, Ont., plans by N. L. Thompson, Dpt. of Mines, Federal Bldg., Saskatoon, science service bldg. $1,000,000.

COMMERCIAL BUILDINGS

Calif., Richmond—CHURCH—First Christian Church, 169 6 St., Richmond, church, $250,000.

Calif., West Sacramento—SHOPPING CENTER—Westfield Village Shopping Center, c/o Rickey & Brooks 2015 J St., Sacramento, shopping center, $300,000.

Conn., Derby—HOSPITAL, etc.—Griffin Hospital, Seymor Ave., plans by Louis A. Walsh, 111 W. Main St., Waterbury, 3 story, 44x201 ft., rein.-con. hospital addn., alterations Seymour Ave. $350,000.

D. C., Wash.—CHURCH—St. Sophia Greek Othodox Church, 8 and L Sts. N.W., plans by Archie Protopapas, 121 E. 23 St., New York, N. Y., 1,318 seating capacity, Byzantine-style church, 2 chapels. $500,000.

Ill., Chicago—APARTMENT—Owner, c/o Nathan Stagman & Assoc., 53 W. Jackson Blvd., Zone 4, 3 story, English bsmnt., rein.-con. framing, brick 35-unit apartment Kolmar St. and West End Ave. $250,000.

Ill., Round Lake—PAROCHIAL SCHOOL—Roman Catholic Diocese of Chicago, 205 W. Wacker Dr., Chicago, parochial school, $325,000.

Kan., Kansas City—CHURCH—First Presbyterian Congregation, 1109 N. 7 St., new bldg. Woodcrest Dr. and Victory Hy. in Wyandotte Co. $315,000.

Kan., Winfield—HALL—Southwestern College, Winfield, plans by W. I. Fisher, Central Bldg., Wichita, rebuilding Richardson Hall, $500,000.

▲ **Ky., Louisville**—STORE—J. J. Newberry Co., 245 Fifth Ave., New York, N. Y., plans by Walter Wagner & Joseph Potts, Fincastle Bldg., Zone 2, store, 4 and Chestnut Sts., $1,250,000. CD 10/21/48.

Md., Baltimore—RESIDENCES—Bowers Constr. Co., Harry Bart, 208 E. Lexington St., plans by Hal. A. Miller & Assoc., 2118 Maryland Ave., seventy-four 2 story, bsmnt., 16x30 ft., brick residences, near Seton Heights Apartments, off Rogers and Park Heights Aves. $600,000.

Md., Baltimore—RESIDENCES—Long Meadow Estates, Gordon E. Sugar, 2207 Sulgrave Ave., thirteen 1½ story, 46x72 ft., brick, shingle residences, near here. $351,000.

▲ **Mich., Allen Park**—HOSPITAL—Peoples Community Hospital Auth., Ypsilanti, c/o R. D. Pretty, clk., Municipal Bldg., Allen Park, brick, steel, concrete hospital, $1,250,000.

Mich., Lansing—CHURCH—First Universalist Parish, L. C. Church, chn. Bd. Trustees, Morley R. Hartley, pastor, 831 N. Washington St., 1 story, bsmnt., brick, stone church, Jefferson St. $250,000.

Mich., Saginaw—CONVENT—St. Casimir R. C. Parish, 2122 S. Jefferson St., plans by Frederick E. Wigen, 507 Weichmann Bldg., 3 story, brick, masonry convent, S. Jefferson St. $250,000.

Mo., Kansas City—TRUCK TERMINAL—Prucka Transportation Co., 1428 W. 9 St., Zone 7, truck terminal, warehouse and offices, Santa Fe St. and Intercity Viaduct in Woodweather Industrial Dist.

N. J., Trenton—OFFICE—American Tile & Rubber Co., 3 Assunpink St., office, Assunpink St. $300,000.

▲ **N. J., Weehawken**—APARTMENT HOUSE—Estate of George Freygang, c/o Emil A. Schmidlin, 586 Central Ave., East Orange, 17 story apartment, to be called Hamilton Plaza Apartments, Hudson County Blvd., between Hamilton and King Aves. $1,500,000.

▲ **N. Y., Flushing**—APARTMENTS—Clearview Housing Corp., c/o Benjamin Braunstein, archt., 163-18 Jamaica Ave., Jamaica, four 3 story apartments, three 6 story apartments in area bounded by 71 Ave., Parsons Blvd., Jewel Ave. and 164 St. $3,500,000.

N. Y., Flushing—STORES—Morris Moran, c/o M. Martin Elkind, archt., 40-09 82 St., Jackson Heights, stores Horace Harding Blvd., northwest corner of Parsons Blvd.; Horace Harding Blvd., Parsons Blvd. to 159 St.; Horace Harding Blvd., northwest corner of 157 St.; Horace Harding Blvd., northwest corner of 156 St.; Horace Harding Blvd., northeast corner of 154 Pl., $285,000.

▲ **N. Y., Hicksville**—SHOPPING CENTER, etc.—Hicksville Store Center, Inc., c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, retail shopping center, incl. department store, 2 super markets and 30 retail stores, Broadway. $1,000,000.

▲ **N. Y., Hollis**—APARTMENTS, etc.—Esther Ellman, c/o Joseph Schafran, archt., 200 W. 72 St., New York, Zone 23, 22 three story apartments and garages in area bounded by Francis Lewis Blvd., Grand Central Parkway, 209 St. and Whitehall Terrace. $5,390,000.

N. Y., New York—STORES, etc.—Deck Realty, Inc., 16 Court St., Brooklyn, Zone 2, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, stores and garage, 111-23 W. 51 St. $265,000.

N. Y., New York—APARTMENT—Samuel Glass, 2623 Jerome Ave., Zone 58, plans by Albert Goldhammer, 6 Varick St., Zone 13, 6 story apartment, Grand Concourse, north of Kingsbridge Rd. $350,000.

O., Mt. Vernon—HOME FOR AGED—Ohio Order of Eastern Star, c/o Mrs. Zella Watkins, Grand Trustee, 21279 W. Lake Rd., Rocky River, home for aged, near here. $700,000.

▲ **Pa., Erie**—APARTMENTS—Baldwin Bros., Inc., 1002 State St., plans by Phillip Friedman, 121 S. Negley Ave., Pittsburgh, eight 2 story bsmnt., brick apartments, E. 38 St. $3,000,000.

▲ **Pa., Erie**—HOSPITAL—Hamot Hospital, 4 E 2 St., plans by Johnson, Johnson & Assoc., 821 Commerce Bldg., 10 story brick hospital addn., modernization, 200 addnl. rooms. $3,000,000.

Pa., Mount Lebanon—APARTMENTS—Leland Park Apartments, 12A, Inc., 729 Washington Rd., plans by Philip Friedman, 121 S. Negley St., Pittsburgh, one 6 story, bsmnt. brick block apartment, one 2 story bsmnt. apartment. $600,000.

S. D., Rapid City—HOSPITAL—Bennett Memorial Hospital, Rapid City, plans by Ewing & Forrette, Elks Bldg., hospital. $850,000.

Tex., Austin—HEADQUARTERS, LIBRARY—State Medical Assn. of Texas, G. M. Gambrell, Hardwicke & Wade; Medical Bldg., plans by Staub & Rather, 2814 Virginia St., Houston, headquarters and library. $500,000. Zumwalt & Vinther, Merchantile Sec. Bldg., Dallas, and Wilson & Cottingham, Littlefield Bldg., consult. engrs. CD 1/17.

(Continued on page 80)

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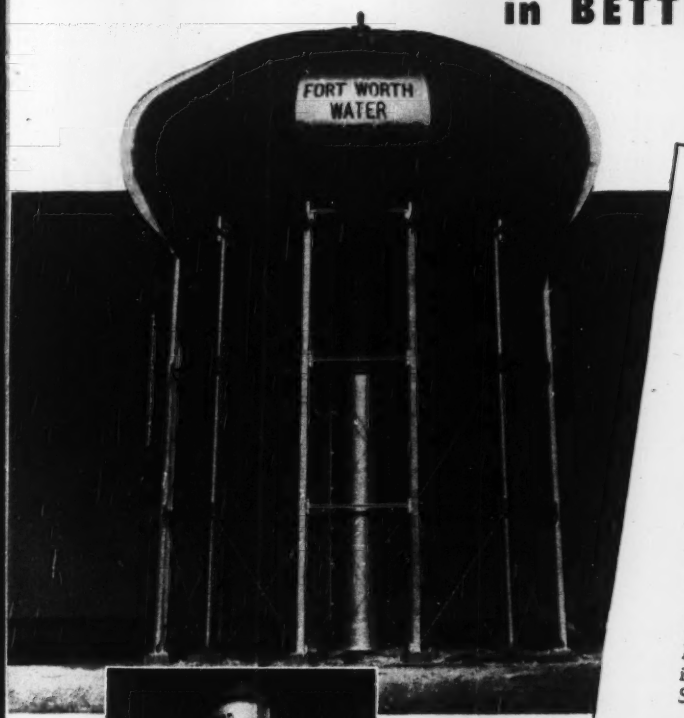

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SANTA CLARA, CAL.	621 Alviso Road		

(Continued from page 78)

▲ **Tex., Dallas**—APARTMENT—HOTEL, etc.—E. P. Lamberth & H. D. Lewis, 3918 Gaston St., 13 story luxury apartment-hotel, $3,000,000; 260 car underground garage, $400,000; rein.-con. swimming pool, appurtenances, $75,000, on Turtle Creek Blvd. in front Cipango Club.

Tex., Houston—CHURCH—Episcopal Church of the Incarnation, 3966 McKinney St., masonry church, $250,000.

Tex., Midland—HOUSING—James K. Boyce, W. Hy. 80, Midland, addnl. housing at various street locations, $275,000.

Wash., Colville—HOSPITAL—Mt. Carmel Hospital, Colville, plans by J. P. O'Neill, Columbia Bldg., Spokane, hospital addn. $450,000. CD 10/24.

Wash., Spokane—AUDITORIUM, etc.—Whitworth College, Country Home Estates, plans by Funk, Molander & Johnson, S. 7 Wall St., auditorium-office-classroom bldg. $600,000. CD 6/18/45.

Wash., Tonasket—HOSPITAL—Tonasket Hospital Assn., Tonasket, plans by W. R. Grant & Son, 312 Lloyd Bldg., Seattle, Zone 4, hospital. $485,000. CD 8/11.

▲ **Alta., Edmonton**—OFFICE—David Landers, c/o F. H. MacDonald, archt., 220 Kresge Bldg., 10 story office. $4,000,000. CD 5/26.

▲ **Que., Quebec City**—SCHOOL—Prov. Govt. School of Commerce Inc. and Laval University, Quebec City, plans by L. Mainguy, 1045 Chaumont St., Sillery, 6 story tower unit 75x325 ft., rein.-con., structural steel, stone commerce school at Laval University, St. Foye. Approx. $2,000,000. CD 1/2/48.

INDUSTRIAL BUILDINGS

▲ **Ala., Decatur**—PLANT—Chemstrand Corp., c/o G. W. Jones & Son, engrs., Huntsville, fiber mfg. plant, Approx. $3,000,000. CD 10/5.

Conn., Middletown—PLANT—The Eis Automotive Corp., N. Main St. plans by Carl Segerberg, 363 Main St., 2 story, 72x120 ft., brick, steel plant addn. $160,000.

Ga., Chamblee—WAREHOUSE, etc.—J. I. Case Co., 700 State St., Racine, Wis., warehouse and office, $600,000.

Md., Baltimore—WAREHOUSE—Samuel M. Pistorio, 6332 Frederick Rd., Zone 28, 153x334x18 ft., concrete block, storage warehouse, Krecht Ave., south side Pennsylvania R. R. $125,000.

▲ **Mo., Kansas City**—FACTORY—Fairbanks Morse & Co., 600 S. Michigan St., Chicago 5, Ill., factory for scale mfg. dpt. $3,000,000, Stone & Webster Eng. Co., 49 Federal St., Boston, Mass., consult. engr.

Mo., Kansas City—PLANT—Stern-Sleyman-Prins Co., 715 Armour Rd., North Kansas City, Mo., 85,000 sq. ft. women's clothing mfg. plant and showrooms, Gilliam Plaza and Linwood Blvd., Kansas City, $750,000, Kivett & Myers, 1016 Baltimore St., Zone 6, archt.

▲ **N. J., Crawford**—FACTORY—H. A. Wilson Co., 105 Chestnut St., Newark, N. J., small electrical parts mfg. factory on 34 acre tract between Lehigh Valley R.R. and Rahway River, $2,000,000.

N. Y., Brooklyn—STORAGE—Ira S. Bushey & Sons, Inc., 764 Court St., Zone 31, plans by William A. Lacerenza, 44 Court St., Zone 2, 1 story storage bldg., 139-69 Bryant St. $100,000.

N. Y., New York—FACTORY, etc.—David Linzer & Sons, 10 Astor Pl., Zone 3, 2 story fdctory and warehouse for mfg. paint brushes, E. 151 St between River and Gerard Aves. $500,000.

▲ **N. C., Lillington**—PLANT—Burlington Mills, Inc., J. C. Cowan, Jr., pres., Greensboro, textile mfg. plant, on 325 acres off State Hy. 15-A, 2 mi north of Lillington. Approx. $2,000,000.

Okla., Oklahoma City—WAREHOUSE—Jerry Haag, 1424 N. W. 26 St., industrial warehouse, N. W. 42 St. and Cooper Ave. $160,000.

▲ **Ore., Coos Bay**—PLANT—Coos Bay Lumber Co., Coos Bay, plans by Plywood Research Foundation, 620 E. 26 St., Tacoma, Wash., hardboard plant. $1,250,000.

▲ **Ont., Cobalt**—SMELTER—Cobalt Chemical & Refinery Co., 45 Richmond St. W., Toronto, smelter at site on Montreal River, $2,000,000. CD 5/12.

Que., Quebec West—ABATTOIR IMPRVS.—Abattoir Cooperative Federee de Quebec Ouest, E. Masse, mgr., 255 Blouin St., plans by L. Mainguy, 1045 Chaumont Ave., Quebec City, abattoir general imprvs., addns., alterations, etc., Approx. $500,000. CD 7/18/45.

UNCLASSIFIED

Colorado—RURAL DISTRIBUTION LINES—Y-W Electric Assn., Akron, rural distr. lines, Washington Co., $455,000. W. H. Burgwin, 2657 S. Broadway, Denver, consult. engr.

▲ **Colo., Trinidad**—POWER DISTRIBUTION SYSTEM—City, power distr. sys. within city. $1,000,000. CD 11/12.

Fla., Tallahassee—SWIMMING POOLS—City, 2 swimming pools, $250,000. Smith & Gillespie, Roberts Bldg., Jacksonville, Zone 1, consult. engrs.

Iowa—RURAL DISTRIBUTION LINES—South Crawford Rural Electric Co-operative, Denison, rural distr. lines, Crawford Co. $191,000. Stanley Eng. Co., Hershey Bldg., Muscatine, consult. engr.

Kentucky—RURAL DISTRIBUTION LINES—Inter County Rural Electric Co-operative Corp., Danville, 120 mi. rural distr. lines, 14 mi. transmission line and sys. imprvs., Boyle Co., $737,000. CD 12/1/49.

▲ **Ky., Louisville**—RECREATIONAL FACILITIES—City, City Hall, voted bonds, recreational facilities, $1,500,000. CD 10/31.

Louisiana—RURAL DISTRIBUTION LINES—Louisiana Rural Electric Co-operative, Alexandria, 173 mi. rural distr. lines, 50 mi. transmission lines and sys. imprvs., Rapides Parish $573,000.

Louisiana—RURAL DISTRIBUTION LINES—Louisiana Rural Electric Co-operative, P. E. Randol, pres., Alexandria, 140 mi. rural distr. lines, 2-2000 KVA sub-stations, incl. approx. 14 mi. 69 KV and 10 mi. 34.5 Kv trans. lines, Evangeline Co. $300,000. Freese & Nichols, 407 Danciger Bldg., Ft. Worth, Tex., consult. engrs.

▲ **Oklahoma**—RURAL DISTRIBUTION LINES—East Central Oklahoma Electric Co-operative, Okmulgee, 527 mi. rural distr. line, 35 mi. transmission line and sys. imprvs., Okmulgee Co. $1,315,000. CD 6/30/49.

▲ **Oklahoma**—RURAL DISTRIBUTION LINES—Lake Region Electric Co-operative, Wagoner, 482 mi. rural distr. line and sys. imprvs., Wagoner Co. $1,080,000.

Texas—OIL PIPE LINE—Texas Pipe Line Co., Texas Bldg., Houston, 56 mi. 12¾ in. crude oil pipe line between near Wichita Falls and Chico Pump station in Wise Co., $950,000. CD 7/26/49.

▲ **Tex., Freeport**—WHARF, etc.—Brazos River Harbor Navigation Dist., Freeport, bond election Dec. 15, wharf and shed, $1,000,000; railway tracks in Navigation zone, $250,000; docks and repairs, $275,000; misc. constr. in harbor area, $200,000. J. Russell Wait, c/o owner, engr. CD 6/5.

Tex., Houston—PARKS—City, City Hall, 900 Brazos St., addnl. imprvs. to Hartman Park, $65,000. Roy W. Ledbetter, 3702 Almeda Rd., archt.; park and concessions unit in Hermann Park, $65,000, storage and rest rooms in various parks, $115,500. Irving J. Klein, 1317 Austin St., archt. CD 11/22/44.

Tex., Kermit—COUNTY PARK—Winkler Co., Kermit, defeated bonds Oct. 31, county park, $485,000. CD 10/5.

▲ **Ont., Hamilton**—ARENA, etc.—City, J. F. Berry, cy clk., plans by G. T. Evans, 36 James St., 6 story, 85x200 ft., rein.-con., steel arena-auditorium $1,750,000. W. L. McFaul, c/o owner, engr. CD 10/5/44.

Ont., Toronto—ARENA—Toronto East Arena Gardens, Inc., c/o R. Lipsett, 744 Bay St., arena for east Toronto at Gerrard St. E. and Main St., $250,000. C. A. Meadows, 4 Grange Rd., Toronto, engr. CD 2/10.

Que., Pointe aux Trembles—AMUSEMENT PARK—Champlain Park, Inc., 4505 Ste. Catherine St., Montreal, amusement park on 4-acre site and essential sewers and water mains, $400,000. B. F. Cassidy, c/o owner, engr.

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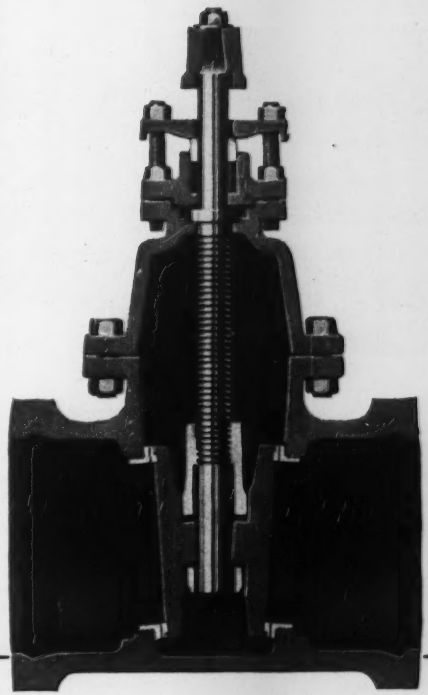

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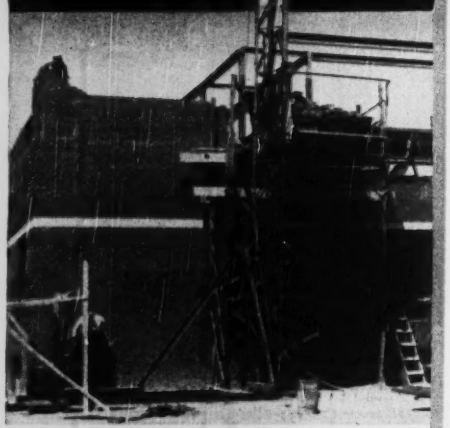

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CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

Ia., Gilbertville—B.A. 11/28—City, WW $36,000 E. E. Schenk, Waterloo, engr.

Md., Sabillasville—B.A. 11/28—State, Dpt. P. Imprvt., 506 Park Ave., Baltimore, Zone 1, water distr. sys. and underground piping for fire protection Victor Cullen State Sanitorium, $110,000. Plans deposit $10. Turpin, Wachter & Assoc., 1004 N. Charles St.; Baltimore, design engrs. John B. Funk, 506 Park Ave., Baltimore, Zone 1, chr. engr.

† **Md., Bethesda**—B.A. 11/29—Public Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., replacing black iron water pipe in Ward Bldgs 3 and 5, incl. valves and fittings, Spec. 25825. Plans deposit $10. CD 5/27/48, under Public buildings.

Miss., Tupelo—B.A. 12/1—City, 51,500 lin. ft. 6 and 8 in. water mains, Leland B. Cook, Tupelo, engr. CD 11/10.

Tex., Houston—Bids Asked—Meadowwood Estates, c/o Ed Williams, Land Development Co., Jacinto City, via Houston, water lines near here. $38,000.

LOW BIDDERS

Miss., Picayune—City, Nov. 16, WW imprvs., Proposal A, from Red River Constr. Co., & W. H. O'Toole, 2212 Hollywood Ave., Shreveport, La., $408,392, Proposal B, from Eunice Iron Works, Eunice, La., $47,181. CD 10/27.

▲ **Okla., Oklahoma City**—City, City Hall, Zone 2, Sect A and B water distr. Contr. 1, from Earl W. Baker & Co., Bethany, $1,445,970 est. $1,500,000 and $98,500 est. $101,000 respectively***Sect. C of water main distr. Contr. 1 from M. A. Swatek & Co., Hightower Bldg., Zone 2, $869,411, est. $901,000***Sect D, of water main distr. Contr. 1, from Doerfler Constr. Co., 2514 S. Agnew St., Zone 8, $248,978, est. $275,000. C. E. Bretz, 1913 N. Broadway, Zone 3, engr. CD 10/31.

Wis., Butler—Village, Village Hall rejected bids Aug. 15, water mains, LB. $148,262. CD 8/25, under LB.

CONTRACTS AWARDED

Ala., Athens—City WW imprvs., to P. A. Buchanan Contg. Co., 630 Woodland Ave. S. W. Birmingham, $204,705. Bids 11/9. CD 10/31.

Ala., Montgomery—City, 2 concrete reservoirs, to Pressure Concrete Co., Florence, $215,443. Bids 11/7. CD 10/19.

S. C. Greenville—City City Hall WW imprvs., to V. B. Higgins Co., Greensboro, N. C. $429,940. Bids 11/7. CD 10/12.

SEWERS, WASTE DISPOSAL

BIDS ASKED

New York—B.A. 11/27—President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, Zone 15, storm sewer, full capacity and appurtenances 177 St., 109 Ave. sanitary sewer, appurtenances, 177 St., 219 St., Watson Pl.; combined sewer, appurtenances, Kissena Blvd., Jewel and Melbourne Aves., 152 St. and Union Turnpike, construct inlets where necessary and receiving basins, appurtenances, Horace Harding Blvd., and southwest corner of 166 St., southwest corner of 167 St., northwest and southwest corners of 171 St., southwest and southeast corners 173 St., etc. CD 7/16/48.

† **Md., Great Falls**—B.A. 11/28—National Capital Parks, Interior Bldg., 18 and C Sts., Wash. 25, D. C., storm sewer, 48 in. rein.-con. culvert pipe, rein.-con. junction chamber and riprap stone headwall. Contr. I 28np-1539.

Kan., Ottawa—B.A. 11/29—City, sewage plant exten., imprvs. $65,000. Black & Veatch, 4706 Broadway, Kansas City 2, Mo., engrs. CD 4/14.

O., Dayton—B.A. 11/30—Comrs. Montgomery Co. Court House, sanitary sewer south of Stroop Rd., water and sewer lines for Jalappa Rd. and vicinity. Plans deposit $5 each. Earl Riber, co. sanitary engr. CD 8/23.

Miss., Tupelo—B.A. 12/1—City, Sect. A, 1.78 MGD treatment plant, Sect. B, 4 lift stations, Sect. C, 194,150 lin. ft. sewer lines, Leland B. Cook Tupelo, engr. CD 11/10, under water supply.

Miss., Gulfport—B.A. 12/4—Harrison Co., Court House, trunk storm sewer near Henderson Point. Bids 9/29 rejected. CD 10/31.

Tex., Houston—Bids Asked—Meadowwood Estates, c/o Ed Williams, Land Development Co., Jacinto City, via Houston, sanitary and storm sewers, near here $60,000.

LOW BIDDERS

Fla., Cocoa—City, Nov. 7, Part A, 2 sewage lift stations, 1 sewage treatment plant, from Ivy H. Smith Co., 1525 San Marco Blvd., Jacksonville, Zone 1, $163,455; Part B, 7,500 ft. vitr. clay sewer pipe and 5,500 ft. c.i. pressure pipe for sewerage sys., from Langford Constr. Co., Orlando, $86,389. CD 10/16.

La., Monroe—City, Nov. 9, sanitary sewer imprvs., from Sullivan, Long & Hagerty, Bessemer, Ala., $485,945. CD 10/19.

New York—President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens, Zone 15, Nov. 8, combined sewers, appurtenances Merrick Blvd., 133 and 131 Aves., 132 Rd., 220, 221, 222 and 223 Sts., from Victor Clemente, 115-28, 131 St. S. Ozone Park. $100,422. CD 10/3.

▲ **Okla., Oklahoma City**—City, City Hall, North Side sewage disposal plant, from Earl W. Baker & Co., Bethany, $1,480,000. Est. $1,495,000. CD 10/31.

Texas—State Hy. Comn., Austin, Nov. 14, 7 ft and 5 ft. arch storm sewer in open cut on Hy. U. S. 75, U. 515 (10), Dallas Co., from Texas Bitulithic Co., 111 Commerce St., Dallas $140,822. Est. $158,000. CD 10/30.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

December 1	Maine
Alabama	December 13
December 6	New York
California	

Ala., Haynesville—B.A. 12/11—Lowndes Co., Haynesville, bridges over Kelley Creek and Gardiner's Bottom. Plans deposit $20.

† **Alaska**—B.A. 12/12—The Alaska R. R., Dpt. Interior, Anchorage, substructure, erecting 7 government-furnished 70 ft. girder spans and approaches for railroad bridge at Mile Post 64.7 over 20 mi. River at Portage. Plans deposit $10.

† **Maryland**—B.A. 12/14—At office H. J. Spelman, div. engr., Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va.,

Anne Arundel Co.—steel girder spans on conc. abutments, wings with stone facing, grading, drainage, b. conc. pavement 0.275 mi. Baltimore-Washington Parkway, Proj. 1J2. Plans deposit $10. Adv. ENR 11/23. CD 11/8.

LOW BIDDERS

New York—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Nov. 15, first phase of Johnson City bridge and approaches exten. easterly from Floral Ave. in Johnson City to Route 17, incl. substructure for 8 span 1,400 ft. bridge over Susquehanna River, substructures of bridge over Vestral Rd. substructures for double span bridge over Route 17, 25 ft. rein.-con. box bridge at an access road to Vestral Rd., etc., Broome Co., from L. B. Stranberg & Son Co., Inc., 908 S. Dearborn St., Chicago, Ill. $648,836. Est. $733,000. CD 10/25.

Oregon—State Hy. Comn., Salem, 689 ft. rein.-con. steel bridge over Snake River and 0.668 mi. highway roadbed on Payette spur of Old Oregon Trail Hy., Malheur Co., from Lindstrom Bros., 7335 N. E. Broadway, Portland $444,705. CD 10/31.

Tennessee—State Hy. Dpt., Nashville, Nov. 10, 2 mid-river piers for Nashville's Victory Memorial Bridge, spanning the Cumberland River, Davidson Co., from C. Rule Constr. Co., 217 13 Ave. N., Nashville, $433,519. CD 10/20.

Texas—State Hy. Comn., Austin, Nov. 14, Los Linguish and Quitaque Creek Bridges (rein.-con.) Hy., FM 1065, R 740-2-2, Floyd Co., from Bell, Braden, Garker & Givin, Inc., Amarillo, $83,151; 5 underpasses U.S. Hy. 81 in Austin, FI-200 (6), Travis Co., from Pace-Spence Co., Mansfield, $270,710, est. $320,000. CD 10/30 and 11/2.

CONTRACTS AWARDED

Arizona—State Hy. Dpt., Phoenix, furnishing, installing structural steel superstructure for Kaiser Springs Bridge on Kingman-Wickenburg Hy., Mohave Co., to Arizona Sand & Rock Co., S. 7 St., Phoenix, $108,843. Bids 11/9, awarded 11/10. CD 10/25.

▲ **New Jersey**—New Jersey Turnpike Auth., Trenton, Contr. 45 A substructures for overpass of Oak Island Yards of Pennsylvania R.R., over Delancy St. etc., Newark, Essex Co., to Underpinning & Foundation Co., 155 E. 44 St., New York, N. Y. $1,841,506. Bids 10/31, awarded 11/16. CD 11/10, under LB.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, Zone 5, 3 concrete, steel bridges over Boktulatha River on State Hy. 7 at Glover, McCurtain Co., to O. R. Gragg, Henryetta, $391,050, est. $402,190***2 concrete steel bridges State Hy. 2 near Whitfield, Haskell Co., to Henryetta Constr. Co., Henryetta, $70,260, est. $82,795***7 concrete, steel bridges U.S. Hy. 77 between Eastern Ave. and Witcher in Oklahoma City, Oklahoma Co., to Oklahoma Paving Co., 4131 N. Portland St., Oklahoma City, Zone 7, $224,909, est. $238,603***4 concrete, steel bridges State Hy. 73 east of Sweetwater, Roger Mills Co. to R. R. Tway Constr. Co., 710 E. 19 St., Oklahoma City, Zone 5, $75,823, est. $77,050***wid'n 4 concrete, steel bridges U.S. Hy. 66 west of Chandler, Lincoln Co., and 3 concrete, steel bridges State Hy. 41 west of Minco, Grady Co., to Moore Bridge Co., Ada. $85,560 est. $85,700 and $114,726 est. $116,673 respectively. Grand total $962,328. Bids 1114, awarded 11/15. CD 11/8.

Oregon—State Hy. Comn., Salem, 165 ft. rein.-con. viaduct and 0.31 mi. highway roadbed on Mt. Hood Hy., Hood River Co., to E. C. Hall Co., Route 6, Box 630, Portland, $56,633; 410 ft. rein.-con. viaduct over North Yamhill River on Moore Valley county road, Yamhill Co., to J. F. Johnston, Sherwood, $104,840. Bids 11/10. CD 10/31.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

December 1	December 19
Alabama	Louisiana
Ontario	New York
December 6	December 28
California	Louisiana

New York—B.A. 11/27—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, grading, curbing, constructing sidewalks, 175 St. and 109 Ave.

N. Y., New York—B.A. 12/5—Bd. Water Supply, 120 Wall St., Zone 5, approx. 2¼ mi. bit. macad. highway, appurtenances in Town of Neversink, Sullivan Co. and for replacement approx. 15,500 lin. ft. rustic timber guard rail with cable guard rail along Roads 1 and 6 of highways around Rondout Reservoir in Town of Warwarsing, Ulster Co. CD 1/27, under Water Supply.

Tex., Houston—Bids Asked—Meadowwood Estates, c/o Ed Williams, Land Development Co., Jacinto City, via Houston, street constr. and asph. type paving, near here. $65,000.

LOW BIDDERS

Arizona—State Hy. Dpt., Phoenix, Nov. 8, widn. 4¼ mi. East Broadway, Maricopa Co., from Tiffany Constr. Co., W. Broadway Rd., Phoenix, $126,822.

▲ **New Jersey**—New Jersey Turnpike Auth., Trenton, Nov. 10, Contr. 63, paving and shoulders for entire Sect. 5 of N. J. Turnpike 14.2 dual roadway both 4-lane and 6-lane interchange (3) paving, pavement drainage sys., railroad track grading, removal of overhead, topsoiling and reconstr. certain facilities at an adjacent military post, Raritan and Woodbridge Twps., Carteret and Linder, Middlesex and Union Counties, from S. J. Groves & Sons, State Hy. 35, Woodbridge, b. conc., $6,492,696 for F type shoulders, $6,352,696 for G type, and $6,226,696 for H type; c. conc., $7,005,846 for F type, $6,865,864 for G type and $6,739,846 for H type. CD 10/18.

New Jersey—New Jersey Turnpike Auth., Trenton, Nov. 10, Contr. 68, grading, area drainage for Service Areas 10-N and 10-S on both sides of Turnpike between Sta. 456 and Sta. 485, Sect. 5, constr. 1,400 ft. sewer line and fully equipped temporary sewage lift station together with appurtenant work Woodbridge Twp., Essex Co., from Peter W. Kero Co., 284 Willow Ave., Lyndhurst, $543,290. CD 10/26.

▲ **New Jersey**—New Jersey Turnpike Auth., Trenton, Nov. 14, Contr. 65, paving and drainage 7 mi. of Turnpike from Hackensack River in Secaucus to Route 6 in Ridgefield Park, Bergen Co., from George M. Brewster & Sons, 275 W. Fort Lee Rd., Bogota, b. conc. F type shoulders, $3,345,350; G type shoulders $3,229,350; H type $3,193,100; c. conc. F type shoulders, $3,811,350; G type shoulders $3,695,350; H type shoulders, $3,659,100. CD 10/25.

▲ **New York**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Nov. 15, reconstruct with 22 ft. b. conc. pavement on 5.27 mi. Route 9N exten. northerly from Route 86 A in village of Keen to point just south of village of Upper Jay, etc., Essex Co., from Louis Mayersohn, 36 State St., Albany, $719,776, est. $792,000***1 first arterial route construction in city of Mechanicville consisting 0.89 mi. Central Avenue arterial with 24 ft. and 46 ft. c. conc. pavement exten. from Route 146 northward to South St., incl. grading, drainage, Saratoga Co., from S. A. Scullen Co., Box 362, Waterford, Conn., $344,865, est. $405,000***first arterial route, construction in Schenectady consisting grading, drainage 1.08 mi. Thruway Spur connection from Broadway to Altamont Ave. incl. 0.47 mi. temporary b. conc. pavement, Schenectady Co., from White Oak Excavators, Inc., 61 E. Main St., Plainville, Conn., $1,243,873, est. $1,486,000.

grading, structure 7.08 mi. New York State Thruway exten. easterly from Route 31 in village of Jordan to point approx. 800 ft. west of County Road 64 in Hamlet of Warners, incl. 0.28 mi. misc. reinf. 25 ft. span concrete box bridge, etc., Onondaga Co., from Berg Eng. Constr. Corp., McKinley Bldg., Buffalo, $1,005,151, est. $1,290,000***24 ft. c. conc. 3.46 mi. High Bridge Rd. (County Road 8) extend. southeasterly from its intersection with Route 5 in town of De Witt to Route 92 in village of Manlius, incl. 4 span 380 ft. I-beam bridge 30 ft. span rein.-con. slab bridge, etc., Onondaga Co., from Green Island Constr. Co. & Victor R. Arzani Contg. Co., 2507 James St., Syracuse, $740,740, est. $826,000***20 ft. bit. tr. grav. 3.99 mi. existing road, exten. northerly from Route 20 A at Persons Corners to point approx 2/3 mi. south of Route 354 at Bennington, incl. extensive relocation, etc., Wyoming Co., from Wilkes Contg. Co., Inc., 1415 Niagara St., Buffalo, $246,851 est. $300,000.

constructing Route 206 (E. Main St.) in village of Bainbridge exten. southeasterly from Route 7 to point approx. 1,200 ft. east of Unadilla River, totalling 0.61 mi., incl. paving portion County Rd. 39, etc., Chenango Co., from William Van Kleek, Rift Rd., New Paltz, $94,383, est. $140,000***c. conc. 0.54 mi. Brooklyn-Queens Expressway in city of New York extending easterly from Washington Plaza to Metropolitan Ave. incl. an I-beam viaduct for Williamsburg

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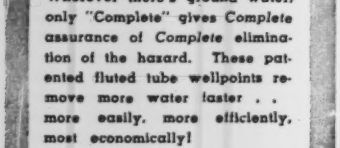

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Bridge connection totalling 1,769 ft. long, 325 ft. I-beam viaduct at Meeker Ave., King Co., from Lenart Constructors, Inc., 101 Park Ave., New York, $2,290,468, est. $2,374,000***48 ft. c. conc. Hillside Ave. (Route 25B) from point 0.17 mi. west of Herrick's Rd. eaten. easterly through villages of Mineola nd Williston Park 1.16 mi. to Long Island R. R. (Oyster Bay Branch), etc., Nassau Co., from Del Balso Constr. Corp., 500 Zerega Ave., New York, $555,917, est. $580,000***received no bids Nov. 15, construct 20 ft. bit. gravel 1.63 mi. Phoenicia-Stony Clove Hy. (Route 214) from connection with recently completed pavement north of Stony Clove to Katterskill junction just south of Route 23 A, incl. 2 small bridges, etc., Green Co., est. $186,000. CD 10/25 and 10/31.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, Zone 5, Nov. 14, c. conc. pavement, wid'n. 1.156 mi. U. S. Hy. 66 on 3 St. through Elk City, Beckham Co., from Myron Groseclose, Box 266, Bethany, $225,679. Est. $205,000.

Oregon—State Hy. Comn., Salem, Nov. 9, surf., oiling and crushed material 6.98 mi. Drake Creek-Adel sect. Warner Secondary Hy., Lake Co., from Spada Bros., 8507 N. E. Columbia Blvd., Portland, $245,700. CD 10/31.

Oregon—State Hy. Comn., Salem, Nov. 10, grading, topping 17.1 mi. Wilson Creek-Boardman sect. of Columbia River Hy., Morrow and Gillian Counties, from Berke Bros., 7923 N. E. Halsey St., Portland, $509,302. CD 10/31.

▲ **Texas**—State Hy. Comn., Austin, Nov. 14, flexible base, one course surf. tr. 11.61 mi. Hy. FM 557, V 1019-2-2 and R 1019-3-1, Camp and Upshur Counties, from L. W. Pelphrey Co., Gladewater, $156,225***base and asph. surf. tr. 19.837 mi. Hy. FM 181 and 1803, R 961-2-2 and RV 961-2 and 3-1 and 1, Andrews Co., from J. R. Fanning Lubbock, $201,803***base and two course surf. tr. 11.241 mi. Hy. FM 28 and 500, Floyd and Briscoe Counties, from F. N. Lumbert, Albuquerque, N. M., $85,720***soil asph. base, 1 course surf. tr. 7.361 mi. Hy. FM 1463, R 188-10-1, Fort Bend Co., from Brown & Root, Inc., 4100 Clinton Dr., Houston, $122,217***flexible base, one course surf. tr. 9.066 mi. Hy. FM 1485, R 1062-3-1, Montgomery Co., from Thomas & Ratliff, Rogers, $112,400***flexible base, two course surf. tr. 11.486 mi. Hy. SH 25, S. 1163 (2), Wichita Co., and fdn. course prime and one course surf. tr. 11.528 mi. Hy. FM 1188 and 1189, R 1332-1-2 and R 1331-1-2, Erath Co., from J. W. Perry, Insurance Bldg., San Antonio, $97,946, est. $120,000 and $108,556, respectively ***flexible base, shoulders, wid'n. pavement and hot mix b. conc. pavement 10.765 mi. Hy. U. S. 75, Proj. C 47-6-20, Collin Co., from Uvalde Constr. Co., Hiline Dr. and N. Industrial St. Dallas, $365,902*** concrete base, flexible base shoulders, asph. pavement 1.697 mi. Hy. SH 35 and Spur 59, C 179-2-24, Brazoria Co., from Harrison Eng. & Constr. Corp., 4638 Mill Creek Parkway, Kansas City, Mo., $105,604***reconstruction and wid'n. pavement 12.987 mi. Hy. U. S. 77, Kennedy Co., from South Texas Constr. Co., 226 Pearse St., Corpus Christi, $393,595 ***flexible base, one course surf. tr. 7.464 mi. Hy. FM 450, R 1382-3-1, Harrison, Marion and Upshur Counties, from C. R. Heidelberg, Jacksonville, $90,069 ***flexible base, one course surf. tr. 5.766 mi. Hy. FM 1263, R 798-3-1, Hemphill Co., from Cooper & Woodruff, Dallas, $73,851***uexible base, one course surf. tr. 6.795 mi. Hy. FM 1299, R 1261-2-1, Wharton Co., from The Jarbet Co., Inc., 201 W. Basse St., San Antonio, $114,502***flexible base, one course surf. tr. 9.672 mi. Hy. FM 1231 and U. S. 84, S 884 (2), Scurry Co., from J. R. Canion & Rex D. Kitchens Constr. Co., P. O. Box 756, Austin, $167,220. CD 10/30 and 11/2.

CONTRACTS AWARDED

Illinois—State Div. Hys., Springfield, bit. 3.42 mi. U. S. Route 67, Madison Co., to M. Hoeffken Co. & Hoeffken Bros. Inc., 22 W. B. St., Belleville, $718,059; bit. resurf. 2.43 mi. Ill. Route 5, Cook Co., to Standard Paving Co., 30 N. La Salle St., Chicago, $520,253. Bids 10/20, awarded 11/10. CD 10/24, under LB.

Kentucky—State Hy. Dpt., Frankfort, traffic bound surf. 4.511 mi. Louisa-Catlettsburg Rd., Proj. F 537 (1), SP (64-115) (10-85), Lawrence and Boyd Counties, to Sam Nally Co., Bardstown, $510,870. Bids 10/27. CD 11/3, under LB.

▲ **Michigan**—State Hy. Comn., Lansing, grading, drainage 0.542 mi. dual c. conc. paved hy. utilities and service roads on M 112, Edsel Ford Expressway, Proj. UI 82-64 C 26 (UI 391 25), Wayne Co., to Charles J. Rogers, Inc., 14836 Grand River, Detroit, $839,077. Bids 11/2. CD 11/10, under LB.

Mo., Kansas City—City, c/o Pub. Wks., City Hall, Zone 6, drainage facilities and grading Van Brunt Blvd. from 31 to 35 Sts., to George Bennett Constr. Co., 1520 Central St., $181,300. Awarded 11/13. CD 11/8/47.

New Jersey—State Hy. Dpt., Trenton, paving 4.277 mi. Route 4, Sec. 44-A, Cape May Court House Relocation, Fed. Proj. F-8 (3) and F-24 (4), Middle Twps., to Ole Hansen & Sons, Pleasantville, $877,650. Bids 11/2, awarded 11/15. CD 11/10, under LB.

▲ **Oklahoma**—State Hy. Dpt., Capitol, Oklahoma City, b. conc. wid'n. and resurf. 7.321 mi. U. S. Hy. 66, west of Chandler, Lincoln Co. and b. conc. wid'n. and resurf. 6.974 mi. U. S. Hy. 66 east from the Oklahoma Co. line, Lincoln Co., to Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., Omaha, Neb., $335,132 est. $371,701 and $218,773 est. $250,399, respectively***grading, drainage 6.541 mi. and 2 bridges on county road north of Shattuck, Ellis Co., to Park Ward Co., Insurance Bldg., Oklahoma City, Zone 2, $69,371, est. $72,920***b. conc. 1.155 mi. St. Hy. 64-A cut oc south of Muskogee, Muskogee Co., to Anchor Constr. Co., Barnes Bldg., Muskogee, $91,553, est. $92,510***grading, drainage 4.683 mi. U. S. Hy. 77 between Foundry Ave. and Witcher, Oklahoma Co., and grading, drainage, minor structures 1.511 mi. U. S. Hy. 77 at N. E. 63 and Eastern Sts., Oklahoma Co., to J. W. Moorman & Son, Barnes Bldg., Muskogee, $370,484, est. $392,410 and $158,410 est. $189,349, respectively***b. conc. 0.359 mi. Santa Fe R. R. underpass between Lincoln and Classen, and b. conc. 1.95 mi. U. S. Hy. 66 between Lincoln and Classen, Oklahoma Co., to W. E. Steelman, 2800 N. E. 4 St., Oklahoma City, Zone 4, $53,197 est. $51,988 and $394,758 est. $381,054 respectively.

grading, drainage 7.782 mi. State Hy. 41 east from the Caddo Co. line, Grady Co., to P. & H Constr. Co., 3715 N. W. 23 St., Oklahoma City, Zone 7, $192,519, est. $188,400***grading, 1 bridge, b. conc. paving, wid'n. and resurf. 7.244 mi., U. S. Hy. 77 at Moore, Cleveland Co., to Dahlgren & Brooks, Insurance Bldg., Oklahoma City, Zone 2, $402,583, est. $438,954***stabil. aggregate base bit. paving 3.092 mi. State Hy. 2 from Whitfield to Briartown, Haskell Co., to Haskell Lemon, Tishomingo, $77,379, est. $87,966***grading, drainage 3.092 mi. State Hy. 2 from Whitfield to Briartown, Haskell Co., to Jack Durett, Keota, $69,579, est. $77,772***stabil. aggregate base bit. paving 4.249 mi. State Hy. 51 from Tulsa Co. line east towards Coweta, Wagoner Co., and c. conc. 4.474 mi. U. S. Hy. 64 at Muldrow, Sequoyah Co., to Amis Constr. Co., 1647 Exchange St., Oklahoma City, Zone 8, $126,112 est. $143,180 and $442,968 est. $426,000 respectively***c. conc. 0.684 mi. U. S. Hy. 60 in Bartlesville, Washington Co., to Jack Briscoe, Stillwater, $137,439 est. $131,000*** grading, drainage 4.249 mi. State Hy. 51 from Tulsa Co. line east towards Coweta, Wagoner Co., to McMichael Concrete Co., Tuloma Bldg., Tulsa, $77,909 est. $91,769. Grand total $3,218,167.

Oregon—State Hy. Comn., Salem, paving 8.43 mi. Yamhill River-Salt Creek sect. Dallas-Coast Secondary Hy., Polk Co., to Porter W. Yett, 6500 N. E. Ainsworth St., Portland, $110,240; grading, paving, 3.85 mi., construct 2 grade-separation structures on Canyonville sect. Pacific Hy., Douglas Co., to Roy L. Houck, 1585 N. 20 St., Salem, $440,229. Bids 11/9. CD 10/31.

▲ **Pennsylvania**—State Hy. Dpt., Harrisburg, relocate 1.92 mi. U. S. 322 from intersection of Flower St. and Concord Ave. west to near T. R. 452 incl. new overhead bridge across Baltimore & Ohio R. R., 900 ft. 2-lane roadway for channelizing traffic east and west in vicinity of Dean St. and remainder will be four-lane divided roadway, Delaware Co., to Berlanti Constr. Co., Inc., 15 Oakland Ave., Harrison, N. Y., $1,193,156. Bids 10/27. CD 11/1, under LB.

▲† **Alaska**—Bureau Pub. Roads, Dpt. Commerce, Juneau, grading; surf. Sect. C of Richardson Hy., Big Delta to Rapids to Lytle-Green Constr. Co., 312 Masonic Temple Bldg., Des Moines, Ia., $1,771,091. Bids 11/8. CD 10/24.

Que., Dorval—Town, J. H. Lalonde, secy., work on streets north of railway tracks, to H. J. O'Connell Ltd., Canada Cement Bldg., Montreal, Approx. $150,000.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Washington**—B.A. 11/30—U. S. Eng., 628 Pittock Block, Portland, 5, Ore., constr. pile dike and revetment and repair existing pile dike and revetment along Columbia River at Kalama Port Dock, Cowlitz Co., Serial No. CIVENG-35-026-51-109. CD 11/2.

† **N. M., Albuquerque**—B.A. About 12/2—U. S. Eng., P. O. Box 1538, dust and erosion control, Stage II, Sandia Base, Serial No. Eng 29-005-51-8. Plans deposit $10.

Miss., Gulfport—B.A. 12/4—Harrison Co., Court House, 1,428,609 cu. yd. hydraulic fill for Sand Beach. Plans deposit $25. CD 6/27/46.

† **Washington**—B.A. 12/5—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., constr. West Canal main drains, drain W645, Station 80 plus 00, Columbia Basin Proj., near Ephrata, Spec. 3238, L. N. McClellan, Bldg. 1 A, Denver Federal Center, Denver, Colo., ch. engr.

LOW BIDDERS

▲† **Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, Nov. 9, second-stage construction Chief Joseph Dam, Bridgeport, Serial No. CIVENG-48-108-51-12, from L. E. Dixon Co., 409 California St., San Gabriel, Calif., Arundel Corp., Pier 2 Pratt St., Baltimore, Md., Hunkin-Conkey Constr. Co., 1740 E. 12 St., Cleveland, O., and American Pipe & Constr. Co., 4635 Firestone St., Southgate, Calif., $25,967,921. Est. $23,870,907. CD 10/9.

CONTRACTS AWARDED

▲† **North Dakota**—U. S. Eng., Fort Lincoln, Box 300, Bismarck, 84,210 kw-generator and appurtenances, Garrison Dam and Reservoir, CIVENG 32-015-51-2, to General Electric Co., 102 W. Lincoln St., P. O. Box 197, Fergus Falls, Minn., $4,951,994. Bids 9/21. CD 9/24, under LB.

† **Oregon**—U. S. Eng., Pittock Block, Portland, clearing areas B and J in Detroit Dam reservoir on North Santiam River, CIVENG 35-026-51-74, Marion Co., to Penrod Constr. Co., Hudson, Colo., $218,998. Est. $291,785. Bids 11/3. CD 10/6.

† Virginia and North Carolina—U. S. Eng., foot of Front St., Norfolk, Va., construct Island Creek Dam, Buggs Island, CIVENG 44-110-51-1, to Ralph E. Mills Co., Inc., 1210 Tennessee St., Salem, Va., $598,510. CD 7/14.

AIRPORTS

BIDS ASKED

† Wash., Yakima—LAUNCHING SITE—B.A. 12/4—Dpt. Army, Purchasing & Contg. Officer, Fort Lewis, launching site for radio-controlled airplanes at Yakima firing center, Inv. No. 45-016-51-80.

CONTRACTS AWARDED

† Fla., Cocoa—HOUSING—U. S. Eng., P .O., 4970, Jacksonville, Zone 1, 4 technical and 3 utility bldgs., Long Range Proving Grounds, Eng. 08-123-51-3, to Lawrence C. Pearce Co., 1201 Kings Ave., Jacksonville, $523,118. Bids 10/17 CD 10/25. under L. B.

▲† Me., Limestone—HEATING PLANT—Dpt. Army, P.O. Box 2510, Boston, Mass., central heating plant at Air Force Base, Eng. 19-016-51-10, to Robert A. Vernier Constr. Co., 65 Commercial St., Portland, $1,445,505. Bids 9/29. CD 10/17, under L.B.

Minn., Minneapolis—HANGAR—Mid-Continent Airlines Inc., Wold-Chamberlain Field, rein.-con., brick, 23,400 sq. ft. hangar at field, 63 St. and 34 Ave. S., to International Derrick & Equip. Co., 875 Michigan Ave., Columbus, O., Approx. $125,000. CD 10/13.

Ont., North Bay—RUNWAYS—Dpt. Transport, F. T. Collins, secy., Hunter Bldg., Ottawa, hard surf. extns to runways, construct parallel taxi strips to Cart Paving Co. Ltd., 419 Cherry St., Toronto. $500,000. Bids 10/17. CD 10/6.

FOREIGN

Egypt—Egyptian Govt., Cairo, receiving bids civil engineering buildings, penstocks and other works for hydro-electric power station at Aswan Dam. Previous bid date cancelled. Kennedy & Donkin, 12 Caxton St., London, S.W. 1, England, engrs. CD 4/28/49.

PUBLIC BUILDINGS

BIDS ASKED

▲ Conn., New Britain—ARTS, etc.—B.A. 11/27—Controllers Office, State Capitol, Hartford, arts and science bldg. $1,000,000. Bids 9/29 rejected. CD 9/25.

Conn., Killingly—SCHOOL—B.A. 11/28—Bd. Educ. of Town of Killingly, Danielson, school, $800,000. Carl Malmfeldt & Assocs., 36 Pearl St., Hartford, archts.

N. J., Scotch Plains—SCHOOL—B.A. 11/28—Scotch Plains School Dist., Evergreen School on 19-acre tract, off Evergreen Ave., $332,000.

N. Y., Colonie—SCHOOL—B.A. 11/28—Bd. Educ., Central School Dist., Colonie, school addn. $300,000. Plans deposit $35. Ryder & Link, 22 Jay St., Schenectady, archts.

† Va., Fort Belvoir—COMMUNICATIONS—B.A. 11/28—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., communications bldg., Eng. 49-080-51-32-(31). CD 11/8.

Pa., Bethlehem—BARRACKS, etc.—B.A. 11/29—General State Auth., 18 and Herr Sts., Harrisburg, general contract examining field, heating, plumbing, electrical work for barracks, garage and examining field for Pennsylvania State Police. $288,000. Plans deposit $10 each. Gilbert Associates, Inc., 412 Washington St., Reading, archts. A. F. Jones, c/o owner, ch. engr. CD 6/12, under Pa., Allentown.

Pa., Phila.—BARRACKS—B.A. 11/29—General State Auth., 18 and Herr Sts., Harrisburg, general contract; heating; plumbing, electrical work for barracks bldg. for Pennsylvania State Police, at 2201 Belmont Ave. $450,000. Plans deposit $10 each. Davis & Poole, 1203 Otis Bldg., Zone 2, archts. A. F. Jones, c/o owner, ch. engr. CD 6/16.

B. C., Vancouver—FACULTY OF LAW—B.A. 11/29—Hon. E. C. Carson, minister Dpt. P. Wks., Victoria, faculty of law bldg. at University of British Columbia. Approx. $400,000. Sharp & Thompson, 1553 Robson St., archts.

Ont., Oakville—HUT—B.A. 11/29—J. D. McCarthy, secy., Canadian Commercial Corp., 70 Lyon St., Ottawa, constr H-Hut, Ortona Barracks, Tender No. G39-1A-151. Approx. $300,000. Plans deposit $25.

Md., Rockville—SCHOOL—B.A. 11/30—Montgomery Co. Bd. Educ., Rockville, 1 story, 194x198 ft., brick, cinder block, concrete, steel, L-shaped school addn., East Rockville, $320,000. Plans deposit $15. R. S. Senseman, 327 Carroll St. N.W., Wash., D. C., archt.

Minn., Moorhead—POWER PLANT—B.A. 11/30—City, P. A. Cook, clk., furnish, install one 6,000 kva transformer, one 13.8 kv switchgear, coal handling equip. incl. electrical work, $100,000. Plans deposit $20 for transformer and switchgear, $10 for coal handling equip. R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., engrs. CD 6/11/45.

N. J., Jersey City—HOUSING—B.A. 11/30—Jersey City Housing Auth., 614 Newark St., 60-unit housing Proj. NJ-9-7 on Bright St., adjoining Booker T. Washington Project. CD 6/27.

† S. C., Beaufort—STORAGE—B.A. 11/30—At office Capt. W. T. Eckberg, officer in Charge of Construction, P. O. Box 365, Naval Base, Charleston, storage bldg. for inflammable materials with sprinkle sys. and water

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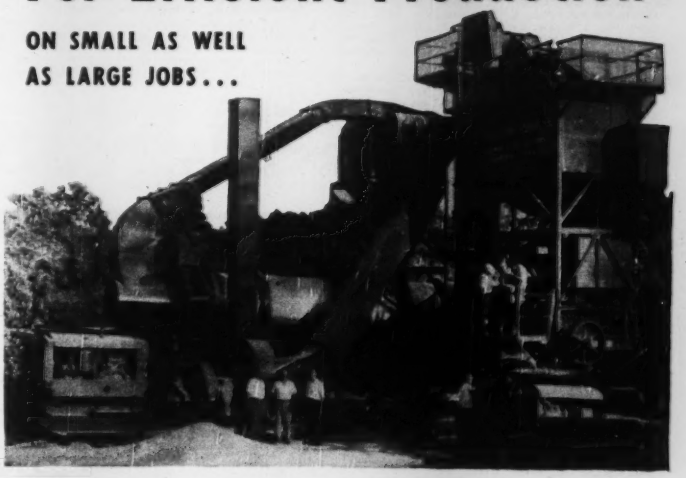

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facilities, and paving adjacent area at Naval Hospital, NOY 23305, Spec. 25700, for Yards & Docks Annex, Navy Dpt., Arlington, Va., Plans deposit $5.

Tex., Corpus Christi—HOUSING—B.A. 11/30—Corpus Christi Housing Auth., A. E. Dabney, Jr., chn., 3701 Ayres St., 200 unit, one story brick, Negro housing, concrete fdn., Winnebago St. Approx. $500,000. Plans deposit $25. Richard S. Colley, 310 S. Tancahua St., archt. CD 11/14.

† **Calif., El Centro**—ROCKET MOTOR MAGAZINE etc—B.A. 12/1—Dpt. Navy, 1220 Pacific Hy., San Diego, constr. rocket magazine and rocket assembly bldg., $68,000. Plans deposit $10.

▲ **Mass., Boston**—HOUSING—B.A. 12/1—City of Boston Housing Auth., 230 Congress St., thirteen 3 story, brick walkup and seven row houses totalling 354 units, Faywood, Waldemar and Orient Aves., East Boston, $4,000,000. Plans deposit $100. M. A. Dyer Co., 24 School St., archt. Hayden, Harding & Buchanan, 828 Park Square Bldg., engrs. CD 10/20.

Ala., Vernon—HOSPITAL—B.A. 12/5—Lamar Co., hospital, $300,000. Plans deposit $50. Wm. I. Rosamond, Propst Bldg., Columbus, Miss., archt. Bids 8/1, rejected. CD 7/14.

LOW BIDDERS

Calif., West Sacramento—SCHOOL—Suttersville Heights Elementary School Dist., Rt. 1, Box 2828, Nov. 8 Hollywood Park Elementary School, from Chas. F. Unger, 2426 7 Ave., Sacramento, $585,600 CD 10/26.

Del., Newark—SCHOOL—University of Delaware, Newark, Oct. 31, agricultural school, from Henry E. Baton, Inc., 1717 Sansom St., Phila., Pa., $774,000. CD 10/11.

Del., Wilmington—SCHOOL—Alexander I du Pont Special School Dist. Wilmington, and State Bd. Educ., Dover, Nov. 1, school in Greenville, from Rupert Constr. Co., 3400 Lancaster Ave., $721,000. CD 10/26.

Ky., Barbourville—SCHOOL—Knox. Co. Fiscal Court, Barbourville, Nov. 10, 2 story, bsmnt., 71x201 ft. and 59x110 ft. school addn., from Cassell Bros., Sullivan St., Kingsport, Tenn., $412,145. CD 10/19.

Md., Loch Raven—COTTAGES—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, rejected bids, Sept 1, four 1 story, 110 x 156 ft., brick, concrete block, H-shaped Junior Group of cottages, L. B. $795,900. CD 9/12, under LB.

Minn., Duluth—PHYSICAL EDUCATION—University of Minnesota, R. S. Calloway, purch. agt., 323 Admin. Bldg., Main Campus, Minneapolis, Nov. 8, general contract physical education bldg. at owner's Duluth Branch, from A. Hedenberg & Co., 409 First National Bank Bldg., $870,000. CD 11/1.

Minn., Mankato—SCHOOL—State, Dpt. Admin., State Capitol, St. Paul, rejected bids Oct. 26, general contract classroom addn. at State Teachers College, L. B. $864,000. CD 11/9, under LB.

▲ **New York**—SCHOOL—Supt. School Buildings, Design & Constr., 49 Flatbush Ave. extен., Brooklyn, Zone 1, Nov. 14, general contract P. S. 186, Little Neck Parkway and 72 Ave., Queens Boro, from Planet Constr. Corp., 11 W. 42 St., New York, Zone 18. $1,295,000. CD, 10/23.

▲ **Va., Fredericksburg**—SCHOOLS—City, L. J. Houston, Jr., city engr., Fredericksburg, rejected bids Aug. 11, Walker Grant High School, $370,000; James Monroe High School, $740,000. Revising plans. CD 7/17.

CONTRACTS AWARDED

▲ **Calif., Corona**—INSTITUTE FOR WOMEN—State Div. Agriculture, P. Wks. Bldg., Sacramento, general contract 180,000 sq. ft., rein.-con., steel California Institute for Women, to Robert E. McKee, 4700 S San Fernando Rd. West, Los Angeles, $2,015,000. Bids 10/24. CD 11/2 under LB.

Calif., Los Angeles—ARTS—Bd. Regents, University of California, 405 Hilgard Ave., $1,000 sq. ft. rein.-con. arts bldg. to A1-Co Co., 5423 Flemish Village Lane, $712,725. Bids 8/8. CD 8/16, under LB.

▲ **Ga., Rome**—HOUSING—Rome Housing Auth., Rome, Housing Projects GA5-3 and GA-5-4, to Batson-Cook Co., West Point, $2,527,449. Bids 11/2. CD 11/9, under LB.

▲ **Ill., Carbondale**—SCIENCE, ANIMAL, etc.—State, State Capitol, Springfield, Nov. 9, life science, animal, industrial education, physical education and library bldgs. to Federal Constructors, Inc., 173 W. Madison St., Chicago, $5,600,000. Bids 11/9. CD 10/20.

Mich., Traverse City—PLANT—State, A. N. Langlus, dir., State Bldg. Dpt., 115 State Office Bldg., Lansing, brick, steel, concrete cold storage plant and service bldg. at Traverse City State Hospital, to Christman Co., 408 Kalamazoo Plaza, Lansing, $536,774. Bids 10/18. CD 10/26, under LB.

Neb., Kearney—SCHOOLS—Bd. Educ., Kearney, general contract 3 schools to McMichael Constr. Co., North Platte, $679,000. Bids 10/11. CD 11/15.

▲ **Tex., Houston**—COURT HOUSE—Harris Co., Court House, supplemental contract for 2 addnl. floors for new court house, to Manhattan Constr. Co., 2828 Pease St. $1,250,000. Finger & Rustay, 711 Natl. Standard Bldg., archts. CD 9/26, under CA.

† **Tex., Port Neches**—PLANT—Reconstruction Finance Corp., Port Neches addnl. remodeling and enlarging synthetic rubber mfg. plant, Purchase and Hire and subcontracts under supervision of United States Rubber Co., Port Neces (operators). $805,000. CD 7/20.

W. Va., Huntington—SCIENCE—State, science bldg. at West Virginia State College, to C. H. Jimison, Huntington, $729,035.

Alta., Namao—SCHOOL—Central Mortgage & Housing Corp., Kensington Bldg., Winnipeg, Man., masonry school, to Shoquist Wicklund Constr., 9955 78 Ave., Edmonton, $500,000. Awarded 11/1. K. F. Hurst, Kensington Bldg., Winnipeg, Man., engr.

▲ **B. C., Vancouver**—HOSPITAL—Province of British Columbia, Parliament Bldgs., Victoria, rein.-con. tuberculosis hospital with all wards to be in 1 story bldg. and administration office in 2 story bldg., to Smith Bros. & Wilson Ltd., 1267 Richards St., Vancouver. $1,422,870. Bids 10/18, awarded 11/10. CD 10/24, under LB.

▲† **Newfoundland, Argentia**—TRANSMITTER BLDG., etc.—Dpt. of Navy, Bureau Yards & Docks Annex, Wash. 25, D. C., installing radio transmission facilities at the Naval Operating Base, Spec. 23396, to Ayers-Hagan-Booth, Inc., 35 Westminster St., Providence, R. I., $1,255,000. Bids 10/17, awarded 11/8.. CD 10/20, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

N. Y., Pleasant Plains—DORMITORIES, etc.—B.A. 11/28—Mission of the Immaculate Virgin, 381 Lafayette St., New York, Zone 12, 3 dormitories and gymnasium. $700,000. Harrison & Abramovitz, 630 Fifth Ave., New York, Zone 20, archts.

▲ **Mich., Lansing**—DEPARTMENT STORE—B. A. 11/30—J. C. Penney Co., 100 S. Washington St., 4 story, bsmnt., steel, rein.-con. department store, $1,000,000, Gillette & Bell, 207 E. 32 St., New York, N. Y., archts. CD 11/2.

Del., Wilmington—Bids Asked After 11/14—Congregation Beth Sholom, du Pont Bldg., synagogue and school, $520,000. Bids 6/1 rejected. Maurice Courland, 2 W. 89 St., New York, N. Y., archt. CD 7/27, under LB.

Pa., Bethlehem—HEALTH and PHYSICAL EDUCATION—B.A. After 11/14—Moravian College, Bethlehem, health and physical education bldg. $300,000. Trautwein & Howard, 1411 Walnut St., Phila., archts. Gibson & Kline, 117 S. 17 St., Phila., engrs. SD 12/20/45.

Pa., Monaca—SCHOOL—B.A. About 12/1—St. John's Roman Catholic Congregation, Monaca, 2 story, bsmnt., 100 x 100 ft., brick, block, steel parochial school and center, Virginia and 15 Sts. $300,000. B. J. McCandless, 239 4 St., Ellwood City, archt. CD 9/11.

Tex., Houston—CHURCH—B. A. 12/5—Trinity Lutheran Church, 12 Reiser St., church, $450,000. Theodore Steinmeyer, 714 Kirkwood Rd., St. Louis, Mo., archt. CD 12/2/49.

Tex., Amarillo—HOTEL—B.A. 11/30—Frank Hembree & Assoc., 814 Virginia St., 2 story, part bsmnt., 23,000 sq. ft. brick, concrete, steel hotel, concrete pier and beam fdn. $250,000. Ward & Chisholm, 721 W. 7 St., archts.

O., Toledo—SCHOOL—B.A. About 12/1—Collingwood Temple, Rabbi Leon Feuer, Collingwood Ave., Sunday School addn. and recreational facilities. $250,000. Herman Feldstein & Nelson Thal, Spitzer Bldg., archts. CD 4/10.

▲ **Ill., Skokie**—HOUSING UNITS—Bids Asked—Co-operative Home Builders, 228 N. LaSalle St., Chicago, Zone 1, 700 housing units various locations, $3,500,000. Rosen & Horowitz, 53 W. Jackson St., Chicago, Zone 4, archts.

SOON LETS CONTRACT

Minn., St. Paul—STUDENT UNION—Macalester College, Dr. C. Truck, pres., 1600 Grand Ave., soon lets contract, superstructure 2 story, bsmnt. student union bldg. $500,000. C. H. Johnston Jr., 715 Empire Bank Bldg., archt. CD 5/6/49.

Minn., Winona—CATHEDRAL—R. C. Diocese of Winona, Most Rev. E. A. Fitzgerald, 275 Harriet St., soon lets contract, 1 story, bsmnt., 61x199 ft., cathedral, Main and Wabasha Sts. $500,000. J. H. Flad & Assoc., 908 W. Johnson St., Madison, Wis., archts. CD 3/9.

LOW BIDDERS

▲ **Calif., Salinas**—HOSPITAL—Salinas Valley Memorial Hospital Dist. Court House, Nov. 9, 5 story, 107,000 sq. ft. structural steel, and light weight concrete 119-bed hospital from Parker, Steffens & Pearce, 115 S. Park St., San Francisco, $2,295,000. CD 2/25/49.

▲ **Calif., San Francisco**—HOSPITAL—Children's Hospital, 3700 California St., rejected bids Aug. 1, 5 story, bsmnt., rein.-con., structural steel hospital wing and remodeling hospital $2,906,000. CD 8/8, under LB.

Colo., Denver—HOSPITAL, etc.—St. Lukes Hospital, 19 and Pearl Sts., Nov. 1, general contract 5 story T-shaped hospital addn., Top of T, 56x199 ft., and base of T 56x97 ft., from J. Kirchhof Constr. Co., 700 Lawrence St., $833,495. CD 10/2.

▲ **N. Y., Ithaca**—ANABEL TAYLOR HALL—Cornell University, Ithaca, Oct. 31, Anabel Taylor Hall United Religious Work Bldg., from John W. Cowper Co., Inc., Sidway Bldg., Buffalo. Est. $1,500,000. CD 10/12.

CONTRACTS AWARDED

Ala., Birmingham—HOMES—Harry Strauss, c/o contractor, 50 homes near Temple Tutwiler Farm, to Randolph Constr. Co., 207 S. 18 St. Approx. $500,000.

Calif., El Monte—DWELLINGS—Highland Homes, 3407 San Fernando Rd., Los Angeles, 109 frame, stucco dwelling in Tract 15352, to Myers Bros., 3407 San Fernando Rd., Los Angeles, $675,800. Paul Duncan, 4823 Laurel Canyon Blvd., Los Angeles, archt.

▲ **Calif., Los Angeles**—MATERNITY, etc.—Cedars of Lebanan Hospital, 4833 Fountain Ave., 5 story 125-bed, steel, concrete maternity and pediatrics addn., to Baruch Corp., 5655 Wilshire Blvd. Approx. $2,800,000. Bids 10/17, awarded 11/9. CD 9/28.

Calif., Whittier—DWELLINGS—Mansfield Corp., 737 N. Highland St., Los Angeles, 71 frame, stucco dwellings, Dittman Dr., to Whiting Constr. Co., 737 N. Highland Ave., Los Angeles, $568,000. Davis Freedman, 407 Commercial Center St., Beverly Hills, archt.

Fla., Fort Walton—HOMES—Harry Strauss, c/o contractor, 78 homes, to Randolph Constr. Co., 207 S. 18 St., Birmingham, Ala. Approx. $700,000.

▲ **Fla., Pensacola**—HOMES—Harry Strauss, c/o contractor, 116 homes, to Randolph Constr. Co., 207 S. 18 St., Birmingham, Ala. Approx. $1,000,000.

Ga., Macon—DEPARTMENT STORE—F. W. Woolworth Co., Woolworth Bldg., New York, N. Y., department store, to R. E. Clarson, Inc., 2000 13 Ave. N., St. Petersburg, Fla., $500,000. CD 8/10.

▲ **Ill., Chicago**—APARTMENT—Chippewa Apartments, 5050 S. Eastend Ave., Zone 15, 56 unit rein.-con., brick apartment, to Sumner S. Sollitt Constr. Co., 309 N. Michigan St., Zone 1, $1,200,000. Awarded 11/9. CD 2/28.

▲ **La., New Orleans**—OFFICE—Humble Oil & Refining Co., Canal Bldg., office bldg., to Hogan Bros., 236 Focis St., approx. $1,500,000.

Md., Baltimore—HOUSES—Alan Constr. Co., Inc., 1406 Court Square Bldg., one hundred and forty 2 story, brick semi-detached houses, 3600 block Clarenell Rd., 3615 to 3685 and 3700 Blocks McTavish Ave., separate contracts, $996,600. Hal A. Miller, 2118 Maryland Ave., Zone 18, archt.

▲ **Mich., Dearborn**—HOUSING—Cudillo Realty Co., 207 N. Telegraph Rd., 120 single brick ranch homes, Dearborn Hills Annex, to Frank J. Volk Bldg. Co., 207 N. Telegraph St., approx. $1,400,000.

▲ **Mich., Inkster**—HOUSING—Carl R. Sams, 1256 Penobscot Bldg., Detroit, 500 single brick homes, Colonial Dr. and Rouge Park. Owner builds, $5,000,000.

N. J., Mountain View—HOUSES—A. W. Van Winkle & Co., 2 Station Square Rutherford, 78-one family houses on Alps Rd. Owner builds, $800,000. Johnson Quality Homes, Inc., 270 41 St., Brooklyn, archts.

N. Y., Far Rockaway—APARTMENT—Kaye & Sons, c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, to be known as Kayrock Gardens, 4204 Greenport Rd. Owner builds. $630,000. CD 4/28.

▲ **N. Y., Mt. Vernon**—APARTMENTS—Fisher Bros., 120-44 Queens Blvd., Kew Gardens, six 6 story apartments for 720 families on 8½ acre site, E. Lincoln Ave and Esplanade North. Owner builds. Approx. $7,000,000. Lawrence M. Rothman, 332 E. 149 St., New York, Zone 51, archt.

▲ **N. Y., Syracuse**—APARTMENTS, etc.—Skyline Apartments, Inc., c/o John H. Graham, archt., 2510 Pennsylvania Ave. N. W., Wash. D. C., 12 story, 200x200 ft., brick, steel, concrete block, cinder block, concrete 350 apartment units and 6 stores, to Charles H. Tompkins Co., 900 16 St. N. W., Wash. D. C., CD 9/11.

Okla., Tulsa—CHAMBER OF COMMERCE—Chamber of Commerce, Tulsa Bldg., Zone 2, chamber of commerce bldg., 600 S. Boston St., to Manhattan Constr. Co., Manhattan Bldg., Muskogee, $603,883. Est. $600,000. Awarded 11/2. J. R. Koberling, Court Arcade, Zone 2, archt.

Pa., Bryn Mawr—HOSPITAL—Bryn Mawr Hospital; Bryn Mawr, general contract hospital addn. and nurses dormitory, to Joseph R. Farrell, Inc., 4425 Market St., Phila., $574,560. CD 10/25, under LB.

Pa., Carlisle—DORMITORY—Dickinson College, Carlisle, dormitory, to Potteiger Co., 328 Tulpehocken Ave., West Reading, $750,000. CD 7/23.

Pa., McKeesport—HOSPITAL—McKeesport Hospital, 1500 5 Ave., 9½ story, 48 x 185 ft., brick on tile, steel hospital addn., to Siesel Constr. Co., 3529 Forbes St., Pittsburgh, $817,000. Bids 11/1, awarded 11/10. CD 11/10, under LB.

Pa., Phila.—RESIDENCES—Benjamin DI Santo, 1529 S. 26 St., residential development, Lansing St., separate contracts. $650,000. G. Harold Murphy, 1621 Sellers St., archt.

Pa., Phila.—LIBRARY—La Salle College, 20 St. and Olney Ave., library, to John McShain, Inc., 17 and Spring Garden Sts. $750,000. CD 6/6.

▲ **Pa., Phila.**—RESIDENCES—Olympic Homes, Inc., Long Lane Apartments, Upper Darby, residential development, Woodcrest Ave., separate contracts. Approx. $1,500,000.

Pa., Phila.—RESIDENCES—A. P. Orleans & Co., 100 W. Rockland St., residential development, Lynford and Large Sts., separate contracts. Approx. $900,000.

Pa., Phila.—SUPER MARKET, etc.—Penn Fruit Co., 1919 Chestnut St., super market and stores, to S. Yellin & Son, 222 N. 11 St. Approx. $500,000. Bids 10/19. CD 10/13.

▲ **Pa., Phila.**—RESIDENCES—Franklin B. Storch, 702 Rodman Ave., Jenkintown, residential development, Lott and Birwood Sts., separate contracts. $1,000,000.

▲ **Pa., Phila.** — WHARTON SCHOOL — University of Pennsylvania, 209 S. 36 St., Wharton School, to McCloskey & Co., 1620 Thompson St., $2,385,800. Bids 11/11. CD 10/11.

Continued on page 89

TRUSCON

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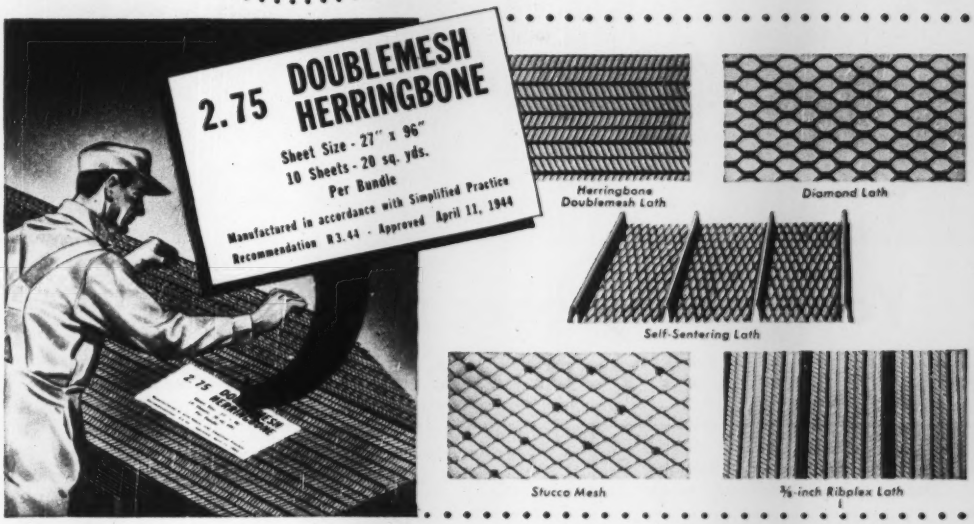
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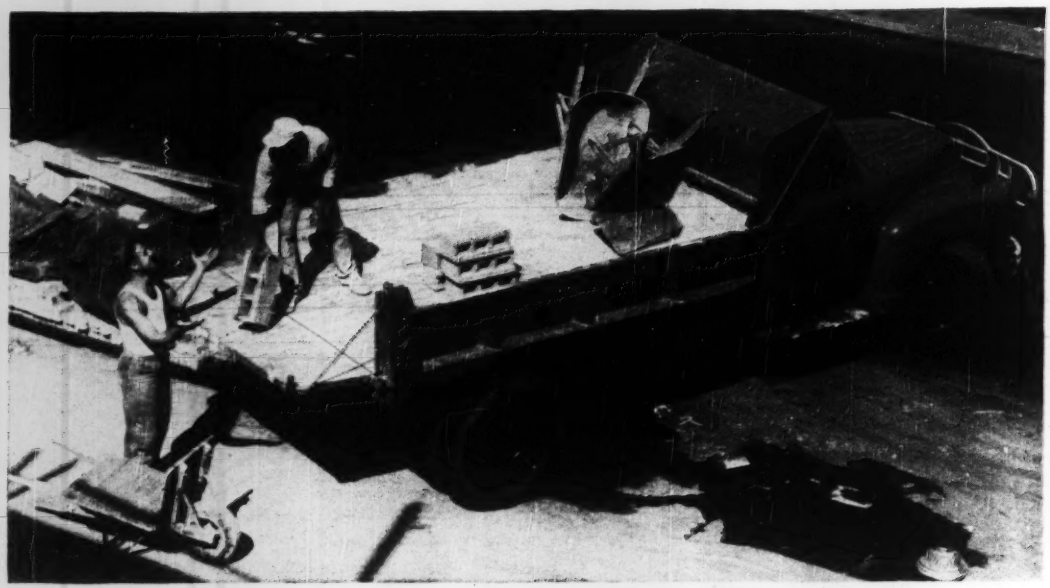

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CHEVROLET *ADVANCE-DESIGN* TRUCKS

(Continued from page 86)

Tex., Longview—DWELLINGS—Lester Matlock, Longview, 20 two story brick dwellings, concrete fdns. Owner builds. $450,000. CD 9/29.

▲ **Va., Quantico**—HOUSING—Potomac River Naval Command, Navy Yard, Wash. D. C., construct, manage, finance, 450 unit, 2 story brick, concrete garden type housing Marine Corp School, to Frank A. Trice, 101 N. Sixth St., Richmond, Va., $3,500,000. Sponsors asking bids on construction. CD 2/10/50.

Ont., Toronto—APARTMENTS—Bruno Constr. Co. Ltd., 115 Lyndhurst Ave., two 4 story, one 65 suite, and other 87 suite rein.-con., structural steel apartments, Kingston Rd. Owner builds. $810,000. Oluf Albrechtsen, 834 Yonge St., archt.

▲ **Ont., Windsor** — APARTMENT — Ecclestone Constr. Ltd., 1551 Wyandotte St., Riverside, 24 four family unit, 2 story, 32x56 ft., concrete block, brick apartments. Owner builds. $1,000,000.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ill., Woodstock—FACTORY—B.A. 12/29—Guardian Electric Mfg. Co., 1 and 2 story, part bsmnt., brick factory addn. $80,000. A. E. Kuby, 109 Benten St. archt.

Ill., Libertyville—FACTORY UNIT—B.A. 11/30—Anchor Coupling Co., 342 N. 4 St., 15,000 sq. ft., brick, steel factory unit on premises. $150,000. Bouchard & Dodge, 1700 Sheridan Rd., North Chicago, archts.

Wis., Viroqua—PLANT—B.A. 12/1—Viroqua Co-operative Creamery Co., 2 story, 35x58 ft., 1 story, 38x58 ft., dairy plant addn., 125 ft. high chimney. Plans deposit $25. E. F. Klinger & Assocs., 218 S. Barstow St., Eau Claire, archts. and engrs. CD 10/27.

Okla., Elk City—PUMP STATION—Bids Asked—Shell Pipe Line Corp. Shell Bldg., Houston Tex., pump station. $250,000. CD 1/26.

Pa., Cr[illegible]rden—MANUFACTURING—Bids Asked—U. S. Concrete Pipe Co., Union Commerce Bldg., Cleveland, O., mfg. bldg. Approx. $80,000.

Pa., Upper Darby—SALES and SERVICE—Bids Asked—Germantown Lincoln Mercury, Inc., 7700 Germantown Ave., Phila., 1 story, 66 x 244 ft. masonry sales service bldg. and showroom. Approx. $82,000. J. Ethan Fieldstein, 1704 Walnut St., Phila., archt.

Tex., Abilene—AUTO—Bids Asked—Western Chevrolet Co., Abilene, auto bldg. (service, shop, parts storage). $250,000. White & Prinz, 1330 N. Industrial Blvd., Dallas, archts. CD 11/13.

Tex., Corpus Christi—REFINERY—Bids Asked—Taylor Refining Co., Taylor, modernizing, expanding refinery near here. Engineering Dpt. of Socony-Vacuum Oil Co., Inc., 26 Broadway, New York, N. Y., consult. engr. CD 11/10.

Tex., Fort Worth—WAREHOUSE—Bids Asked—Texas Phenothiazine Co., 2021 N. Grove St., warehouse. $70,000. Herman G. Cox, 401 N. P. Anderson Bldg., archt.

Tex., Houston—PLANT—Bids Asked—Martin Poultry & Egg Co., 4906 Canal St., plant unit. $70,000.

Tex., Houston—WAREHOUSE—Bids Asked—Gus Sollberger, Inc., 515 Norwood St., warehouse. $100,000. M. R. Van Valkenburgh, 1208 Cleburne St., engr. CD 11/2.

Tex., McAllen—SHOP—Bids Asked—Taylor Mayfair Interests, McAllen, machine shop. $75,000. J. L. Sewell, c/o owner, ch. engr.

▲ **Tex., McAllen**—PLANT, etc.—Bids Asked—Taylor Mayfair Interests, McAllen, recycling plant expansion $2,750,000; gas lines in plant area $75,000. J. L. Sewell, c/o owner, ch. engr. CD 11/10.

▲ **Tex., Texas City**—CHEMICAL PLANT—Bids Asked—Pan-American Refining Corp., Texas City, expansion of Panarez unit in Chemical Plant. Approx. $2,000,000. CD 11/14.

W. Va. Charleston—PLANT, etc.—Bids Asked—Gulf Oil Corp., 1515 Locust St., Phila., Pa. bulk plant and tanks. $100,000.

▲ **N. B., Havelock**—PLANT—Bids Asked—Canada Cement Co. Ltd., Canada Cement Bldg., Montreal, Que., 600,000 bbl. per annum cement plant. $3,000,000. CD 10/4.

Que., Quebec City—WAREHOUSE, etc.—Bids Asked—E. H. Talbot, archt., 50 Vieux-Moulin, Giffard, 75 x 125 ft., concrete steel warehouse 40 x 58 ft. offices, for Roofers Supply Co. Ltd., 1005 de la Canardiere St. Approx. $85,000. CD 8/9.

SOON LETS CONTRACT

▲ **Ind., Gary**—FREIGHT YARDS—Elgin Joliet & Eastern R. R., Kirk Yard, soon lets contract freight yard addns., constr. hump control and signal towers. $3,000,000.

CONTRACTS AWARDED

▲ **Calif., Los Angeles**—PLANT—Canners Co-operative Steam Co., 772 Tuna St., central steam plant, to Offco Constr. Co., 2650 Cherry Ave., Long Beach, Approx. $1,000,000.

Ill., Chicago—WAREHOUSE—Grocerland Co-operative, Inc., 3636 W. 51 St., Zone 32, 100,000 sq. ft. steel, brick, concrete grocery warehouse, to Chell & Anderson, 176 W. Adams St., Chicago, Zone 3, $800,000. Awarded 11/6. P. E. Camburas, 105 W. Madison St., Zone 3, archt. CD 10/5.

Ill., Chicago—FACTORY—W. F. Hall Printing Co., 3007 27 N. Knox St., Zone 41, 170 x 225 ft., steel, brick factory to Gust K. Newberg, 2040 N. Ashland St., Zone 14, $500,000. Awarded 11/9. CD 10/17.

Ill., Chicago—FACTORY—Mrs. Snyders Home Made Candies, Inc., 1813 W. Montrose St., Zone 13, 56,000 sq. ft. candy factory, to Federal Constructors, Inc., 173 W. Madison St., Chicago, Zone 3, $600,000. Bids 11/1, awarded 11/6. CD 10/19.

Ind., South Bend—BREWERY—Drewery's Ltd., 1400 Elwood St. brewery addns., to Solitt Constr. Co., 301 Columbia St., South Bend, $300,000. Awarded 10/25.

Kan., Abilene—WAREHOUSE etc.—A. L. Duckwall Stores Co., Abilene, warehouse and offices, to Johnson Bros., Constr. Co., Salina, Approx $300,000. CD 10/20.

Ky., Louisville—WAREHOUSE—National Distillers Corp., 130 Broadway, New York, N. Y., design and construction brick warehouse, Bernheim Lane, to Sanderson & Porter, 52 William St., New York 5, N. Y., $650,000. Awarded 11/1.

Neb., Omaha—FACTORY—Kitty Clover Potato Chip Co., 24 and Pierce St., general contract potato chip factory, to Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., Approx. $600,000. CD 10/5.

▲ **Pa., West Chester**—MANUFACTURING—Wyeth, Inc., 1600 Arch St., Phila., 1 story, 92,000 sq. ft. brick, steel pharmaceutical mfg. bldg., to Turner Constr. Co., 1500 Walnut St., Phila. $1,000,000. Bids 10/10. CD 10/11.

Tex., Houston—PLANT, etc.—Cameron Iron Works, Inc., Silber Rd., heating treatment plant unit and forge shop addn., to W. S. Bellows Constr. Co., 716 N. Everton St. Approx. $175,000 and $475,000 respectively.

Que., Montreal—PLANT—Molson Brewery Ltd., 1670 Notre Dame St. E., bottling plant addn., to Foundation Co. of Canada Ltd., 1900 W. Sherbrooke St., $600,000. MacDougall & Assocs., 1235 McGill College Ave., archts.

UNCLASSIFIED

BIDS ASKED

† **D. C., Wash.**—ADDITIONAL TRANSFORMER, etc.—B.A. 11/29—P. Wks Office, Potomac River Naval Command Naval Gun Factory, additional transformer, etc. in Bldg. 19, at Navy Security Station. Spec. 25930, Plans deposit $10.

Fla., Jacksonville—ELECTRIC DISTRIBUTION AND TRANSMISSION LINES—B.A. 11/30—City, City Hall, furnishing, installing two 500 KVA vault type underground network units for electric distr.; constr. electric transmission lines and distr. facilities on Atlantic Blvd. Utilities Engineer-Manager, Utilities Bldg., Zone 2, engrs. CD 5/2/46.

† **Alaska, Eklutna**—MATERIALS FOR WAREHOUSE—B.A. 11/30—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., materials for steel warehouse at Eklutna Government Camp, Spec. DS-3234.

FOR LONG LASTING, HEAVY DUTY
DRIVEWAYS
TRUCKING AISLES
INDUSTRIAL FLOORS
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IRVING SUBWAY GRATING CO., INC.
5008 27th St., Long Island City 1, N. Y.
1808 Tenth St., Oakland 20, Calif.

Calif., San Francisco—STADIUM—B.A. 12/5—Recreation & Park Comm. of City and San Francisco Co., 61 Grove St., (2nd unit) rehabilitation Kezar Stadium, Approx. $50,000. Plans deposit $10.

LOW BIDDERS

Ala., Montevallo—SWIMMING POOL—Alabama College, Montevallo, Nov. 8, swimming pool, from E. W. Motes & Son, Sylacauga, $132,900. CD 10/27.

† **Arkansas**—TRANSMISSION CABLES—U. S. Eng., 300 Broadway, Little Rock, Nov. 3, furnish transmission cables and appurtenance at Bull Shoals Powerhouse, Bull Shoals Dam, Cotter, CIVENG-03-050-51-17, from Okonite-Callender Cable Co., Inc., Passaic St., Passaic, N. J., $103,870. CD 10/26.

Calif., Riverside—SWIMMING POOL, etc.—Riverside City School Dist., 3954 12 St., Nov. 9, swimming pool and girls gymnasium, from R. J. Daum Constr. Co., 6803 West Blvd., Inglewood, $518,000. CD 10/25.

† **Colorado**—CONTROL SYSTEM, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver, Colo., Nov. 7, one 96 in. butterfly valve and base, 2 conduit sections and accessories, 1 portal sleeve, and anchor bolts for Carter Lake pressure tunnel, Estes Park-Foothills power aqueduct, Colorado Big Thompson Proj., Spec. DS 3215, from Pelton Water Wheel Co., 2929-19 St., San Francisco, Calif., $59,500, f.o.b. San Francisco. CD 10/10.

Ia., Des Moines—SWIMMING POOL—Bd. Educ., Independent School Dist., rejected bids Nov. 6, general contract swimming pool at Smouse Opportunity School, L. B. $119,950. CD 10/11.

Mo., Kansas—THEATER—City, c/o Park Bd., City Hall, Zone 6, Nov. 2, floodlights, stage and auditorium lights, lighting control sys. for Starlight Theater, Swope Park, from Evans Electrical Constr. Co., 14 and Walnut Sts., Zone 8, $183,652. Est. $145,500. CD 10/26.

▲† **New Mexico**—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Bldg 1A, Denver Federal Center, Denver, Colo. Nov. 8, 80 mi. Socorro-Albuquerque 115 kv transmission line, Schedule 1 using overhead ground wires for entire length of line or Schedule 2 using overhead ground wires for 1 mi. of line, from Reynolds Electrical & Eng. Co. Inc., 718 N. Piedras St., El Paso, Tex. $624,419 or $566,299 respectively. CD 10/10.

† **Oregon**—TRACK—U. S. Eng., Pittock Block, Portland, cancelled bids to have been opened Dec. 12, constructing 1.5 mi. track for Southern Pacific Co. in vicinity of Meridian Dam, Lane Co., CIVENG 35-026-51-98. CD 11/8.

† **South Dakota**—ACCESS RAILROAD—U. S. Eng., 1709 Jackson St., Omaha, Neb., Nov. 10, access railroad for Oahe Reservoir, near Pierre, Inv. 36, clearing, excavating, drainage pipe, fencing, from William Collins & Sons, 514 Black Bldg., Fargo, N. D. $87,265; railroad track and ballast, from Dickert Corp., 53 W. Jackson St., Chicago, Ill., $166,156. CD 10/17.

CONTRACTS AWARDED

▲ **Alabama**—RAILROAD GRADING, etc.—Southern Railway System, A. B. Akers, ch. engr., McPherson Sq., Wash. 13, D. C., grading, drainage for railway tracks addns., Irondale to MacDougald Constr. Co., Northside Dr., N. W., Atlanta, Ga., $1,000,000. CD 10/27.

Arkansas—RAILROAD—Missouri Pacific R. R. Co., R. P. Hart, ch. engr., M. P. Bldg., St. Louis, Mo., 69 mi. rails on main lines, Owner builds, $951,230.

Fla., Jacksonville—TRANSFORMERS—City, City Hall, 3,750 kva transformers for San Jose Sub-station and Emerson St. Sub-station, to Westinghouse Electric Corp., First National Bank Bldg., Pittsburgh, Pa., $53,888; constr. Pearl St. Electric Transmission Line to Satchwell & Joseph Co., 1316 San Marco Blvd., $51,300. Bids 11/2, awarded 11/8. CD 10/20.

Kansas—RAILS—Missouri Pacific R. R. Co., R. P. Hart, ch. engr., Missouri Pacific Bldg., St. Louis, Mo., 52 mi. new rails on main lines. Owner builds, $736,840.

Kentucky—RURAL DISTRIBUTION LINES—Warren Rural Electric Co-operative, Bowling Green, 414 mi. rural distr. lines and sys. improv. in Warren Co., to Trans-Electric Co., 108 E. Oak St., Louisville, $488,875. Chanuberry Eng. Co., Inc., 801 Realty Bldg., Louisville, engr. CD 2/28/49.

Louisiana—RAILS—Missouri Pacific R. R. Co., R. P. Hart, ch. engr. Missouri Pacific Bldg., St. Louis, Mo., 47.1 mi. new rails on main lines, Owner builds. $673,490.

† **Oregon**—TRANSMISSION LINE—Bonneville Power Admin., 827 N. E. Oregon St., Portland, 34.4 mi. Maupin-Detroit 230 kv transmission line, Wasco Co., Inv. 5415, to Pettijohn Eng. Co., 3704 N. E. 67 St., Portland, $225,807. Bids 11/3. CD 10/26.

Texas—GAS PIPE LINE—Humble Oil & Refining Co., Humble Rd., Houston, 50 mi. 8 in. natural gas pipe line at Henderson, to Trojan Constr. Co., Colcord Bldg., Oklahoma City, Okla. Approx. $575,000. CD 10/26.

▲ **Wis., Milwaukee**—STADIUM—Milwaukee Co. Park Comm., Milwaukee, general contract stadium, to Hunzinger Constr. Co., 4541 N. 124 St., Zone 13, $1,509,579; piling and foundations, to Badger State Constr. Co., 4831 W. State St., Zone 8, $184,850. CD 10/31, under LB.

(Proposal Advertisements see pp. 90 to 92)

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Winter's snow and ice melt faster, thanks to the heat-absorbing black surface of roads built with TARVIA road tar. Snow removal is facilitated. And, furthermore, neither calcium chloride nor sodium chloride has any adverse effect on TARVIA road tar surfaces.

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OFFICIAL PROPOSALS

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SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: November 29, 1950 (190)

Sluice Gates & Stop Valve

Wanaque, N. J.,
November 15, 1950.

Separate sealed proposals will be received from 2:00 P. M. to 2:10 P. M., on November 29, 1950, by the North Jersey District Water Supply Commission in its offices at Wanaque, N. J., and publicly opened and read at the last named hour for:

CONTRACT 59—FOR FURNISHING ONE (1) 72-INCH DIAMETER CIRCULAR SLUICE GATE AND DELIVERING SAME TO THE WANAQUE RESERVOIR HEADWORKS, LOCATED IN THE BOROUGH OF WANAQUE, N. J.

CONTRACT 60—FOR FURNISHING ONE (1) ELECTRICALLY OPERATED CONE TYPE STOP VALVE, AND DELIVERING SAME TO THE WANAQUE RESERVOIR HEADWORKS, LOCATED IN THE BOROUGH OF WANAQUE, N. J.

Pamphlets containing the information for bidders, form of proposal, form of contract and specifications may be obtained at the office of the Commission and all bids must be made upon the blank form contained in the said pamphlet for that purpose.

Each proposal must be accompanied by an agreement in writing of a surety company qualified to do business in New Jersey, binding itself to indemnify the Commission against any losses due to the failure of the person or persons making said proposal to properly execute the contract in case it be awarded to him or them, and binding itself that if the contract be so awarded, the said surety company will become surety for the faithful performance of the same in an amount equal to 100 per cent of the contract price and, through a separate bond, will also become surety in the sum of 100 per cent of the contract price, for the protection of all persons furnishing materials or labor for the performance of this contract.

The Commission reserves the right to reject all proposals, or any proposal which may be informal or the acceptance of which, in the judgment of the Commission, would be detrimental to the interests of the municipalities for which the equipment is to be furnished.

By order of the North Jersey District Water Supply Commission of the State of New Jersey:

WILLIAM P. FURREY,
Chairman

Attest: George V. McDonough,
Secretary.

Bids: December 19, 1950 (191)

Construction of Bridge

SECTION I.
INVITATION FOR BIDS.

Sealed bids for the construction of a bridge across the Missouri River at McKinley Street, Omaha, Nebraska, and approaches thereto, will be received by the Douglas County Nebraska North Omaha Bridge Commission at its office at 4514 North 30th Street, Omaha 11, Nebraska, until 11 A.M. C.S.T. on December 19, 1950.

The structure will be of steel and concrete construction, consisting of twelve piers and two abutments supporting six steel girder beam spans, three steel truss spans of the cantilever type and four riveted steel girder spans, with a total length between abutments of 1912.5 feet. The west approach will be approximately 530 feet long and the east approach approximately 28000 feet long, including a steel girder beam bridge, 221 feet long between abutments, over Pigeon Creek. The structures will provide a 26 ft. roadway with two 18 inch safety curbs and the approaches will generally provide a 24 ft. concrete paved roadway.

Separate bids will be taken on the foundations of the river structure as Part I, on furnishing superstructure steelwork as Part II, on erection of superstructure steelwork and completion of river structure as Part III and on the approaches as Part IV. Bidders may submit separate bids on any or all parts and may condition their bids on the award to them of two or more parts.

Each bid shall be accompanied by a certified check on a solvent bank, or a bid bond, payable to the Douglas County Nebraska North Omaha Bridge Commission, in an amount not less than 10% of the total of the bid, to be forfeited as liquidated damages if the bidder should fail to execute contract and provide bond within ten (10) days after notice of award of contract is mailed to him; otherwise to be returned to the bidder.

The Commission reserves the right to hold bids for thirty (30) days after closing time for their receipt, the right to reject any or all bids and to waive any informalities therein, and the right to award contract as may best serve the interests of the Commission.

Copies of plans and contract documents may be examined at the office of Harrington and Cortelyou, Consulting Engineers, 1004 Baltimore Avenue, Kansas City, Missouri, or at the office of Richard F. Ferguson, Associate Engineers, 3131/2 South 14th Street, Omaha, Nebraska, and may be secured from the former upon payment of $20.00 for each complete set of drawings and specifications. The full amount of any such payment for one set of documents will be refunded to each actual bidder and all other payments less a deduction of $10.00 for each separate set, to cover cost of reproduction, will be refunded upon return of documents in good condition within sixty (60) days after date of opening of bids.

H. L. Karrer, Chairman,
Douglas County Nebraska
North Omaha Bridge Commission.

Bids: November 29, 1950 (183)

State Road Work

Sealed proposals will be received by the State Highway Department at its offices in Dover, Delaware, until 2:00 P.M., E.S.T., November 29, 1950, and at that time and place publicly opened for a contract involving the following approximate quantities:

CONTRACT 1007
Federal Aid Project F-SF-106 (7)
Jacob's School to One Mile
South of Greenwood
Sussex County
Bituminous Concrete Divided
Highway
4.914 Miles

2	A. Clearing
0.5	A. Grubbing
88,000	C. Y. Excavation
700	C. Y. Excavation for Structures
52,500	C. Y. Borrow
1,000	C. Y. Borrow Pit Stripping
50,000	C. Y. Selected Borrow
121,000	S. Y. Waterbound Macadam Base
22,000	T. Hot-Mix Asphalt Surface
800	C. Y. Cement Concrete Masonry
1,700	S. Y. Waterproofing
77,000	Lbs. Reinforcing Steel
640	L. F. 12" R. C. Pipe
2,250	L. F. 15" R. C. Pipe
20	L. F. 18" C. Pipe
10	L. F. 24" R. C. Pipe
150	L. F. Relaid R. C. Pipe
280	L. F. 8" C. M. Pipe
1,500	L. F. C. C. Parkway Curb
1,300	L. F. Wood Shoulder Curb
4	Each Catch Basins "B"
5	Each Catch Basins "P.W."
10	Each Catch Basins "P.W.-1"
5	Each Adjusted Catch Basins
5,750	Lbs. Castings
1,300	L. F. Wire Rope Guard Fence
12	Each End Post Attachments
142,000	S. Y. Topsoil
28.5	A. Seeding
27,500	S. Y. Sodding
1,510	Gal. R. C. 1 Asphalt
1,510	Gal. R. C. 3 Asphalt
60	T. Crushed Chips
60	T. Slag Chips
1,000	L. F. Ditching
8,200	S. Y. Removal Present Pavement
5	T. Flake Calcium Chloride

The provision of the Federal Aid Highway Act, as amended, are applicable to this project.

The Employment Agency for this contract shall be the Delaware State Employment Service, Wagamon Building, The Circle, Georgetown, Delaware.

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. ....."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained after November 15, 1950, upon receipt of five dollars ($5.00) for each set, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
BY: J. Gordon Smith, Chairman
M. Allan Wilson, Chief Engineer
Dover, Delaware
November 2, 1950

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. IS-3240) will be received by Bureau of Reclamation, Denver, Colorado, December 14, 1950, and then publicly opened for furnishing 10 motor-driven, vertical-shaft, turbine-type pumping units and 2 motor-driven, horizontal-shaft, centrifugal-type pumping units for Friant-Kern Canal Distribution Systems, Central Valley Project, California. Delivery is desired within 300 days. For particulars, address Bureau of Reclamation, Building 7-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
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(Continued on page 92)

CONTRACTORS
Watch this Section
for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS
(Continued from page 91)

Bids: December 13, 1950 (189)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on December 13, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 144th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT NO. 1				
		G. L. NICKERSON, Dist. Engr., 353 Broadway, Albany, N. Y.				
Albany	FACT 50-3	Catskill Thruway	(Access) 3.24	Found. Cnse. Rob Grav. =	$108,000	$1,965,000
	FACT-C50-4	(Southern Blvd. to Western Avenue) Proj. U1 1069(3)	(Thwy.) 5.06	4.62 mi. Grading = 0.24 mi. Misc. Work = 0.20 mi. (Access Rds. FC Rob Grav. = 3.24 mi.)	Plans $50	
		DISTRICT No. 2				
		L. KEYDEL, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Herkimer and Oneida	FAS SH50-9	Prospect-Herkimer Co. Line, Pt. 2 Oneida County Line-Wilmurt Proj. No. S281 (1) and (2)	10.03	Asphalt Concrete, Optional	$55,000 Plans $50	$1,003,000
		DISTRICT No. 3				
		WM. ROBINSON, Dist. Engr., 301 E. Water Street, Syracuse, N. Y.				
Oswego	Chap. 944 Laws 1946	Utica Street Bridge over Oswego River: City of Oswego	0.18	Asphalt Conc. Type 2A 3 Sp. Girder 600' Total	$58,000 Plans $15	$1,077,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Monroe	LOSP 50-1P LOSP 50-2	Lake Ontario State Parkway, Section A	(Serv. Rds., etc) 4.49 (Pkwy.) 4.82	Asp. Conc. Ty. 1A, Opt. = 7.98 mi. Cem. Conc. Pavt. = 0.01 mi. (Br.) D.S.T. Grad. Gravel = 1.32 mi. Alterations to Br. No. 1	$67,000 Plans $50	$1,222,000
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	FARC50-45	Barrytown-Red Hook-Rock City, S. H. 1312 Proj. F594(3)	1.76	Asphalt Conc. Type 1A, Optional	$18,000 Plans $15	$340,000
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Road, Babylon, L. I., N. Y.				
Suffolk	NSP50-2	Northern State Parkway Extension	4.05	Furnishing & Planting Trees & Shrubs & Misc. Work	$2,200 Plans $15	$42,000
Suffolk and Nassau	NSP50-3 SSP50-3	Northern State Parkway Southern State Parkway	8.71	Chain Link Fence & Misc. Work	$4,500 Plans $15	$81,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders". When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

Sealed bids will be received in the office of the Engineering and Construction Director, The Panama Canal, Balboa Heights, Canal Zone, until 10:00 A.M. Eastern Standard Time, December 14, 1950, for furnishing all plant, tools, equipment, materials, labor, and services and performing all work for the preparation of sites and construction of utilities, pavements, and buildings for Townsite Extension at Silver City, Canal Zone. Ninety-one masonry type buildings are included in this project.

Copies of plans and specifications may be obtained from the Engineering and Construction Director, Balboa Heights, Canal Zone. Requests should be accompanied by a $40.00 deposit for each set, the deposit to be in the form of a United States money order or certified check payable to "Treasurer, The Panama Canal, Balboa Heights, Canal Zone." The plans and specifications may be inspected at the following places:

The Panama Canal, 411 10th St., N.W., Washington 25, D. C. Office of the Inspector in Charge, The Panama Canal, Room 1020, 24 State Street, New York 4, New York. Office of the Inspector in Charge, The Panama Canal, 801 Customs House, Philadelphia 6, Pa. Office of the Inspector in Charge, The Panama Canal, Room 863, U. S. Custom House, 610 South Canal Street, Chicago 7, Ill.

Office of the District Engineer, U. S. Engineer's Office, 4735 East Marginal Way, Seattle 4, Washington. Office of the District Engineer, U. S. Engineer's Office, 751 S. Figueroa Street, Los Angeles 55, California. Office of the District Engineer, U. S. Engineer's Office, 909 17th Street, Denver 2, Colorado. Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery Street, San Francisco 19, California. Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson Street, Omaha 2, Nebraska. Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania Street, New Orleans, La.

(187)

U. S. Government

Department of Commerce, Bureau of Public Roads, November 3, 1950. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., DECEMBER 14, 1950, for Project 1J2, Baltimore-Washington Parkway, Anne Arundel County, Maryland. Steel Girder Spans on Concrete Abutments and Wings with Stone Facing, Grading, Drainage, Asphalt Concrete Pavement and other work. Length 0.275 Mile. The approximate quantity of the more important items are as follows: 95,000 cu. yd. Excavation, 2,350 cu. yd. Cement Concrete, 497,000 lb. Structural Steel and 220 cu. yd. Stone Masonry. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer. (174)

OFFICIAL PROPOSALS

Bids: December 5, 1950 (188)

Highway and Guard Rails

CONTRACT 391

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, December 5, 1950, for Contract 391, for the construction of approximately 2¼ miles of bituminous macadam highway and appurtenances in the Town of Neversink, Sullivan county, New York, and for the replacement of about 15,500 linear feet of rustic timber guard rail with cable guard rail along Roads Nos. 1 and 6 of the highways around the Rondout reservoir in the Town of Wawarsing, Ulster county, New York, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of thirty thousand dollars ($30,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of $5.00 in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, JAMES J. MORAN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: November 28, 1950 (185)

Sewer Pipes

SEALED PROPOSALS—Addressed to the president of the Levy Court of New Castle County, Room 133, Public Building, Wilmington, Delaware, will be received until 11:00 A. M., Eastern Standard Time, Tuesday, November 28, 1950, for the construction of Sanitary Sewers in Collins Park, New Castle Hundred, New Castle County Delaware, consisting of the following:

2,750 lin. ft. of 30" Cement asbestos sewer pipe
5,025 lin. ft. of 24" Cement asbestos sewer pipe
17 Brick Manholes
6 Brick and reinforced brick and concrete manholes
13,500 lin. ft. of piling
210 pile bent supports

Plans and specifications may be obtained at the office of the County Engineer, Room 133, Public Building, Wil., Del. on and after Monday, November 14, 1950 upon payment of five ($5.00) which will not be refunded.

Certified check or surety bond in the amount of $10,000 must accompany each bid.

The Levy Court reserves the right to reject any or all bids and to waive any informalities in the bids received.

JOHN L. CAHALAN
County Engineer

Bids: December 19, 1950 (184)

Sewer & Sewage Pumping Station

VILLAGE OF CROTON-ON-HUDSON
NEW YORK
NOTICE TO CONTRACTORS

Bids will be received by the Village of Croton-on-Hudson, New York, on December 19, 1950, until 8:00 P. M. Eastern Standard Time, for the Construction of Contract IV, Intercepting Sewer and Contract V, Sewage Pumping Station.

Contract Documents may be examined at the offices of the Engineers, Rowe, Albertson & Associates, 116 William Street, New York and at the office of the Village Clerk, Municipal Building, Croton-on-Hudson, New York and obtained at the offices of the Engineers between the hours of 10:00 A. M. and 4:00 P. M. daily except Saturdays, Sundays and holidays.

VILLAGE OF CROTON-ON-HUDSON, NEW YORK
By Albert Rozell
Mayor

DATED: October 24, 1950
ROWE, ALBERTSON & ASSOCIATES
Engineers

SEARCHLIGHT SECTION

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(Not available for equipment advertising)
$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
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INFORMATION.
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DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS received by November 27th at the New York Office 330 W. 42 St., N. Y. 18, will appear in December 7th issue subject to space available

ENGINEERING

We anticipate increasing our engineering organization during the next several months for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill and Power Plants.

These men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us for a personnel form for prompt consideration of your qualifications.

ARTHUR G. McKEE & CO.
2300 Chester Ave.
CLEVELAND 1, OHIO

STRUCTURAL STEEL DESIGNER AND ESTIMATOR
Wanted by leading central west fabricator. Permanent position and good opportunity with large well established and growing company. Please state qualifications, past experience and salary requirements.
P-8258, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ASSISTANT SALES MANAGER WANTED
We have an opening for an aggressive younger man with good concrete reinforcing bar experience, including designing, estimating, detailing and sales. Graduate engineer preferred. In reply give all pertinent information in first letter.
P-8267, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

GENERAL CONSTRUCTION SUPERINTENDENT
By Midwest firm of engineers and contractors operating nationwide. Must be graduate engineer with not less than ten years experience in heavy industrial construction especially power plants, cement mills and processing plants. Give complete information.
P-8115, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED—SPECIFICATION WRITER
experienced in all phases of specification writing and preparation of contract documents, particularly for water and sewerage systems, sewage treatment plants and dams, by Pennsylvania firm. Give complete resume of training, experience, age, availability, salary expected and references in first letter.
P-8139, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

BUILDING SUPERINTENDENT WANTED
Must be top notch building superintendent with thorough knowledge of all phases of commercial and industrial building construction including installation of mechanical equipment. Must work in middle-west. Give age and experience record.
DITMARS-DICKMANN-PICKENS CONSTRUCTION CO.
3712 West Okmulgee Muskogee, Oklahoma

DESIGNERS, DRAFTSMEN - ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.
P-8166, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
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POSITIONS VACANT

CIVIL ENGINEER with field and office experience to write architectural and civil specifications for building projects. Secure position with large organization. Salary commensurate with ability. Sverdrup & Parcel, Inc., 1118 Syndicate Trust Bldg., St. Louis 1, Missouri.

CIVIL ENGINEERS—General Layout Work on Bridge, Highway and Heavy Construction Throughout State of New Jersey for General Contractor. Reply P-8187, Engineering News-Record.

FLOOD CONTROL Engineer. Prefer engineer with general experience on water and flood projects and Corps of Engineers reports. Must be able to meet the public. Opportunity to affiliate with a progressive agency responsible for developing a sound State water control policy. Salary $4800 per year. P-8203, Engineering News-Record.

ENGINEERS WANTED, experienced in design, preparation of plans and construction of water works, sewers, water treatment plants, and sewage treatment plants. State education experience and salary requirements. Answer P-8208, Engineering News-Record.

CONSTRUCTION COMPANY, operating State of Florida, Alabama, and Georgia, require A No. 1 thoroughly experienced job superintendent. Must be able to produce excellent references as to character and experience record in general building construction, reinforced con. etc. Excellent opportunity for an experienced applicant, who can meet our requirements. P-8091, Engineering News-Record.

ENGINEER, CIVIL, experienced in drafting, quantity estimating, surveying and field supervision for general contractor. Write 5310 MacArthur Blvd., N.W., Washington 16, D. C.

ENGINEER, MECHANICAL experienced in detailing, quantity estimating, scheduling quantities and field lay out work for large piping installations. Write 5310 MacArthur Blvd., N.W., Washington 16, D. C.

MANAGER-OPERATOR for natural gas system. Excellent opportunity for young engineer with gas experience. State age, experience, salary expected and when available. Write P. O. Box 155, Quitman, Miss.

STRUCTURAL ENGINEER, experienced in steel and reinforced concrete design, wanted by large, well established Architect-Engineer office located in the Pacific Northwest. Must be capable of assuming design responsibility for commercial and industrial buildings. P-8257, Engineering News-Record.

(Continued on the following page)

Graduate ENGINEERS

GOOD OPPORTUNITIES *for*

MAINTENANCE ENGINEERS: Five to ten years' in planning maintenance work, establishing manpower and material requirements, scheduling and controlling work. Must be thoroughly familiar with Machine and Hand Tools used in Plant Maintenance Work. Must have supervised persons doing maintenance work. Must be graduate. For consultation work.

HEATING AND VENTILATION ENGINEERS: Eight to ten years' progressively difficult experience in field and office problems in heating, ventilating and air-conditioning design. Also, experience in making economical evaluation of alternate methods. Must be graduate.

PROCESS ENGINEERS: Must have at least eight years' industrial plant design and experience with at least three years in responsible charge of design work. Plant experience desirable. Must have experience in chemical plant design calculations, equipment design and plant arrangement, with knowledge of structural, power, instrumentation design, etc. Must be graduate.

Give experience, education, age, references, personal history, salary received and salary expected. Please be complete and specific.

All inquiries will be considered promptly and kept confidential.

E. I. du Pont de Nemours & Co.
(Inc.)
Engineering Department Personnel
WILMINGTON 98, DELAWARE

WANTED
by an
ELECTRIC UTILITY ENGINEERING SERVICE CORPORATION
located in New York City:

Structural Designer of 5 to 10 years responsible experience on design work including steel building structures, reinforced concrete structures. Some architectural experience is desirable. Good opportunity for advancement.

Hydraulic-Foundation Designer of 5 to 10 years responsible experience on design work including mass and reinforced concrete structures, dams, building foundations and other hydraulic structures. Good opportunity for advancement.

P-8178, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

Engineers Wanted

Civil—Electrical—Mechanical—Structural

Apply KAISER ENGINEERS

Division of Kaiser Industries, Inc.

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CITY OF DETROIT

Engineers experienced in the design and construction of water works needed for $38,000,000 project. Starting salary $4,223; $4,965; $5,736; $6,586 per year with annual increases. Submit resume of experience with application request.

Detroit Civil Service Commission

1504 Water Board Building

735 Randolph Street, Detroit 26, Michigan

FIRST CLASS SUPERINTENDENT WANTED

For large concrete sewers, flood control and bridge contracts for work in Philadelphia and New Jersey. State salary, experience and availability.

P-8284, Engineering News-Record

330 W. 42 St., New York 18, N. Y.

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedures of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

(Continued from preceding page)

POSITIONS VACANT

MECHANICAL ENGINEER with 10 to 15 years experience in operating and office work for employment in the engineering of power and utility facilities for a large industrial plant in the Gulf Coast area. This is not a temporary construction position. P-8275, Engineering News-Record.

WANTED BRIDGE designers and draftsmen. Give training and experience, salary expected and date available. Bridge Engineer, State Highway & Public Works Commission, Raleigh, N. C.

POSITIONS WANTED

SALES-ESTIMATOR, engineer 15 yrs. experience building, heavy const. & paving desires salaried sales position. PW-8180, Engineering News-Record.

CIVIL ENGINEER—Exp. in all details of heavy construction, buildings, houses, multi-story housing, bidding, contract negotiatings, inspection, supervising, estimating, cost engineering, accounting, contractors requisitions, mortgage work—now in N. Y. C.—30 years experience, desires responsible position in San Francisco area. PW-8226, Engineering News-Record.

EXECUTIVE ENGINEER, age 38, health excellent, B.S.C.E., 16 years construction management, engineering covering wide field, 5 years foreign. Present position construction superintendent. Experience includes considerable promotional work, competitive bidding, etc. with important administrative duties in connection with industrial construction. Available for personal interview on short notice. Excellent references. PW-8247, Engineering News-Record.

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Structural engineer, 42, mature judgement and broad experience, creative ideas, invaluable analytical and organizational ability. Thoroughly experienced fundamental planning, design, supervision, project management steam and hydro developments, industrial plants, laboratories, offices, AEC jobs, misc. Used to building up organizations from scratch.

Suitable for chief structural engineer, branch office head or what have you? Wants $12,000 and future.

PW-8273, Engineering News Record

330 W. 42 St., New York 18, N. Y.

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STRUCTURAL ENGINEERING

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PROFESSOR CIVIL Engineering; Assoc. M. ASCE; 40, Ph.D. Now occupying teaching position in leading university. Responsible academic and governmental engineering experience. Interested in post involving administrative and executive opportunities such as Department Headship. Excellent health. Minimum salary $7500. PW-8083, Engineering News-Record.

TRAFFIC MAN with five years training and varied experience desires locality N. Y. city with construction firm as Expeditor and General Clerk. PW-8266, Engineering News-Record.

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EXECUTIVE ENGINEER—to manage; estimating, negotiating, bidding, subcontracting, scheduling, purchase and rental of equipment and materials. Experienced both building and heavy construction. PW-8181, Engineering News-Record.

FIELD SUPERINTENDENT: Twenty-five years experience, excavating, earth filled dams, levees, coal stripping operations. Familiar with all types heavy equipment, maintenance and operations. Prefer coal stripping. PW-8283, Engineering News-Record.

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Patent Practice

before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 454, 815-15th Street, N. W., Washington 5, D. C.

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Gardner-Denver 500 cubic foot two-stage water-cooled, D13000 Caterpillar diesel on four pneumatics. Used one month.

Ingersoll-Rand 105 cubic foot, Waukesha gasoline power, on two rubber tires.

Gardner-Denver air-cooled 105 cubic foot with air receiver, V-belt drive from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.

LeRoi 2-stage 105 cubic foot air-cooled, skid mounted, built-in tool boxes, hose reels and hose.

Worthington 210 cubic foot, two-stage, air-cooled, on steel wheels with Hercules diesel.

Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.

Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.

QUARRY EQUIPMENT & BINS

Cedarapids BBB 1036 Scalper.

10 x 20 Beaumont jaw crusher.

10 x 7 Allis Chalmers Blake type jaw crusher.

Cedarapids No. 1 Kubit.

60 ton 2 compartment storage bin with clam shell gates.

New 16 x 16 double clamshell gates.

20" x 6'6" Belt Type Magnetic Separator.

Conveyors—18"—24"—30"—36".

2—4' x 12' Tyler F600 screens.

Cedarapids portable screening plant.

TRUCKS—TRAILERS

1½-ton Ford & Chevrolet.

2½-ton GMC, New and rebuilt.

Sterling COE Model 255GCS tandem drive tractor 9.00x24 tires, 200 HP Cummins supercharged diesel, complete with 40-ton Rogers low bed equipment trailer, 16—7.50x20 tires, airbrakes, outriggers, excellent condition.

2,000 gallon tanks on semi-trailer mounting.

New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

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New JXD Hercules Gasoline.

Buda, Hercules, Hill diesels, rebuilt.

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SHOVELS—CRANES

Lorain 75B, 1¼ yd. shovel, diesel power.

Lorain 55B gas powered crane.

P&H Model 825A 15-ton crawler crane.

Marion 25-ton diesel powered heavy duty truck crane on heavily reinforced Mack.

Brownhoist 1-yd. gas shovel and crane.

Lorain 30 combination ½ yd. shovel, hoe & clam.

P&H Model 150 ½ yd. truck crane on 6x4 Mack.

SHOVEL & CRANE ATTACHMENTS

Lorain 75B-77 1½-yd shovel attachment rebuilt.

P&H 203 shovel attachment.

Chain crowd Lorain 30A shovel attachment.

Lorain 40 Hi-Lift shovel attachment.

Bucyrus-Erie 30B tunnel front attachment.

Koehring 301 dragline fairlead.

50' crane-clam boom, 1¼ or 1½-yd.

Lorain 75 fairlead.

Backhoe Buckets & Attachments

¾-yd Lorain, 40, LBS #6105. 44" cutting width, teeth, sheave.

26" outside width solid bottom type LBS #4377, good condition.

¾-yd Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

NEW TAGLINES

McCaffrey Model 648 for 1¼ to 2-yd crane.

McCaffrey Model 636 for ¾-yd to 1-yd crane.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #7433, rebuilt.

New Lima 1-yd, Amsco, LBS #2295.

Bucyrus-Erie 1¼-yd gas air, LBS #3782, fair.

Lorain 75 manganese 1¼-yd, LBS #7233, teeth and bail.

Lorain 75B, 1¼-yd extended lip, 1¾-yd LBS #2260.

Pettibone-Mulliken 2-yd Lorain 82 or 820, manganese, LBS #5361.

Pettibone-Mulliken 2-yd for 3500 Manitowac LBS #5783.

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Jaeger type "L" double screed, 10½'-12½', rebuilt.

Heltzel 10'-12' finisher, rebuilt.

Blaw-Knox gas-electric 10½'-12½', rebuilt.

2 Koehring 10'-12', rebuilt.

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830'—Truscon 7"x8" forms, with stakes.

1380'—Heltzel 7"x8" forms, with stakes.

1220'—Heltzel 9"x8" forms with stakes.

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Fine Grade Machines

Flynn surgrader 10'-12', rebuilt.

R.B. Fine Grader for 21' width, rebuilt.

Form Graders—2 of each

Cleveland formgrader, new condition.

Carr formgrader, new 1944, rebuilt.

Barber-Greene 44C Trenching Machine 18" to 24" cutting width, 7' depth.

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Hercules 9-11 ton, three-wheel.

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New Warco D7E tandem driven grader, 12' blade, V-type scarifier, 13.00x24 tires all around, 24,500 lbs., International UD14A diesel engine.

Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

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FD Cletrac crawler tractor, Buckeye bulldozer & double drum power control unit, DHXB Hercules diesel engine. Rebuilt, immediate delivery.

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Fully Guaranteed.

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85 foot boom and leads—oil burner. Excellent Condition. *Immediately available.*

FR-8041, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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365 pcs. 40-30 ft. — 250 pcs. 20- 8 ft.
188 pcs. 40-30 ft. — also "Y" pieces

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980 Tons New ZP38—30 to 65 Ft.
478 Tons SP4—20 to 40 Ft.
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4 HB & MARION 32 STEAM CRANES

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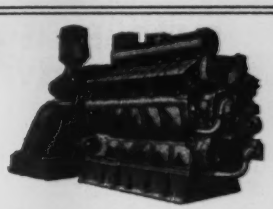

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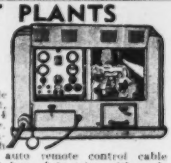

115v 60 cy. A.C. single ph. 5 K.W. Hobart, water cooled, 14 h.p. 4 cyl. Hercules engine. **Remote Control**, complete panel board with instruments. 150 ft. auto remote control cable with reel; 150 ft. #6 hvy. duty wire with reel; housed in metal case with replacement parts & tools. Cable with reels alone worth $400. Reg. price of unit $1900. Shipping wt. 1250 lbs. Our price, complete

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FS-8121, Engineering News-Record
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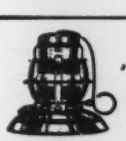

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"LIGHTHOUSE" LANTERN
BURNS 100 HOURS ON ONE FILLING

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CHOICE OF RED OR CLEAR LIGHTHOUSE TYPE GLOBE **$1.85** EA. F.O.B. PHILA.

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Comp. with 2 Handles & Zipper

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Protect your men when working in flooded excavations and ditches or on any job where there is danger of slipping or stepping into deep water. Suit is made of durable rubberized O.D. duck. With vulcanized seams. Can be cut to make separate garments.

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1—Byers Model "80" ¾ yd. heavy duty Crawler Crane. Gasoline Engine, 35 ft. Boom with 10' Extension—Reconditioned.

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Excellent Condition. Cummins Diesels, used little in two years. Each with 65' Booms. Additional 15' Boom Section and 10' Jib with One Dragline and 1¼ Yd. Shovel, fits both.

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2—1948 Model HD19 Tractors. Both equipped with LeTourneau P.C.U. One with Bulldozer, enclosed cabs. Excellent condition. Ready to go. Price: to move both for total sum—$25,000. F.O.B. Cars, New York.

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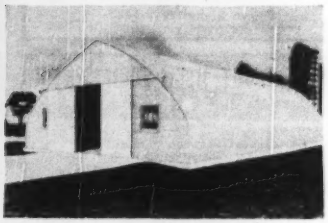
NEW PRODUCTS

Motor grader is powered by a 70-hp diesel engine

WIDE RANGE OF BLADE POSITIONS on Model 312 motor grader is obtained by positive-acting controls located in the cab. Powered by a 70-hp International diesel engine, the 312 weighs 18,285 to 19,800 lb, depending on equipment. The rear axle carries 12,800 lb to provide ample traction. Features claimed include: Full-floating rear axle, 8 overlapping forward speeds, faster mechanically operated controls, 12-ft blade, and high-arch front axle. Steering is through a high-grade mechanical steering gear; power steering and big front tires are optional. V-type snow plow, snow wing, and bulldozer are available. Dimensions include: Over-all length, 24 ft 7½ in.; over-all width, 7 ft 7 in.; over-all height, with cab, 10 ft [illegible]; wheelbase, 18 ft 6½ in.; turning radius, 40 ft; lift of blade for ground clearance with 7.50 front tires, 20 in.; side shift, on circle legs, 16 in. right or left.; maximum bank-cutting angle, 90 deg; shoulder reach, 77 in.; blade pressure, 10,900 lb.—J. D. ADAMS MFG. CO., INDIANAPOLIS, IND.

Catch basin deodorizer

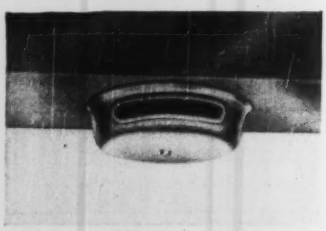
One-half ounce of N.O.R. compound, poured into a smelly catch basin or cesspool, is said to eliminate existing sewer odors. N.O.R. is oil soluble, and forms a film on the sides, retaining its odor counteractant properties over a period of time. Approximately 2 oz per day is said to be sufficient for the average size sewer basin. The compound is also recommended for use in sewer-disposal plants, and by spraying, in garbage disposal dumps. A special compound (N.O.R. 444) is available for counteracting hydrogen-sulfide odors.—PHILLIPS SCIENTIFIC LABORATORIES, 23 E. GARDEN TERRACE, NORTH ARLINGTON, N. J.



All-steel utility building

Arch-type structure features flexibility of design and fast erection. Transparent plastic panels, curved and corrugated to match the steel siding, provide light for the wide, clear-span interior. The Martin building can be erected with unlimited variations in floor plans and sizes.—MARTIN STEEL PRODUCTS CORP., MANSFIELD, OHIO.

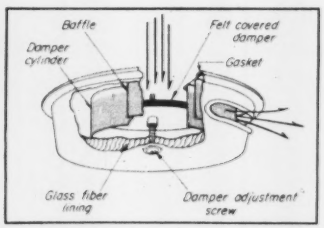
(*Continued on page 104*)



Air-conditioning diffuser saves space and cuts costs

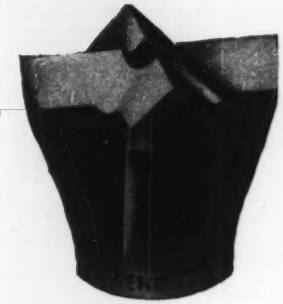
INSTALLATION of air-conditioning systems in large department stores where there is little space for additional utilities is made practicable by new-type "jet" air diffusers. Featuring a series of labyrinths that progressively reduce air pressure from inlet to outlet, the Connor diffusers permit the use of high velocities in distributing cooled air through the ducts.

First installation of these diffusers is in the Kaufmann department store in Pittsburgh. Engineered by the Carrier Corp., the Kaufmann system permits the shifting of merchandising layouts without changing the arrangement of ducts. As the amount of air discharged can be varied, the temperature in any area can be regulated to meet its particular needs at any time. The use of hundreds of closely spaced diffusers further simplifies this control of temperature and increases the flexibility of the system.



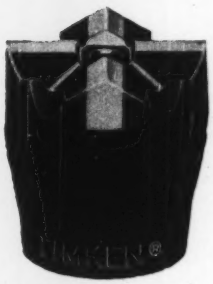
From the central station roof installation, the entire air supply moves through vertical main ducts to two header ducts (30x18 in.) which traverse each floor. Turn-out ducts (14x7 in.) from the headers branch out to a length of 120 ft. Three outlets are in each 20-ft-square bay. In all, some 6 mi of ducts, 1 mi of header duct, 5 mi of run-out duct, and 3,500 diffusers were installed.

Design of the diffusers is quite simple. Air enters at the central opening in the top and is discharged through the slotted opening at the periphery. The actual volume of air delivered is controlled by the central disk valve which can be adjusted from below with a screw driver. At Kaufmann's, the discharge velocity is held to 2,400 fpm to hold down drafts and objectionable noise. The diffusers have a maximum design capacity of 1.35 cfm per sq ft of floor space, but will normally be adjusted to discharge from 0.5 to 0.85 cfm. The diffusers were designed and developed by the W. B. Connor Engineering Corp., Shelter Rock Lane, Danbury, Conn.



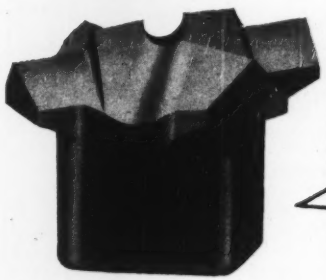
1. MULTI-USE

TIMKEN® ALONE...



2. CARBIDE INSERT

GIVES YOU ALL 3 ROCK BIT TYPES...



3. ONE-USE "SPIRALOCK"

AND A COMPLETE ROCK BIT ENGINEERING SERVICE!

WHAT are *you* looking for in a rock bit? Lowest bit cost? Lowest cost per foot of hole? Greatest possible drilling speed? Some other advantage?

Whatever you want, you're *sure* of getting it from Timken®—for two reasons. First, Timken Rock Bit Engineering Service has *all three* types of bits to select from!

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SAUERMAN POWER DRAG SCRAPER

Movement of almost any kind of material can be accomplished economically by a Sauerman Scraper. It is used to excavate sand, gravel, clay, etc., and deliver to hopper or pile. It is used to clean out sludge basins and handle all kinds of viscous materials. It is used for stockpiling coal, ore and other bulk materials. Wherever used it saves time, money and manpower.

One easily trained man completely controls the operation and takes care of the small amount of maintenance. Only a few parts come in contact with the material being worked, so wear is slight. Installation cost is low and power consumption, Diesel, gasoline or electricity, is small on the basis of tonnage handled.

STORY BEHIND THE PICTURE

A 50-year accumulation of waste coal silt at a Pennsylvania mine is being reclaimed by a 3 cu. yd. Sauerman Power Scraper to a processing plant where the waste is converted into usable fuel. The above photo shows the scraper making its first cut into the pile, which is 1500' long, 700' wide and 50' high.

★

Write for the Sauerman Catalogs A and E and read the facts about handling materials with power scrapers.

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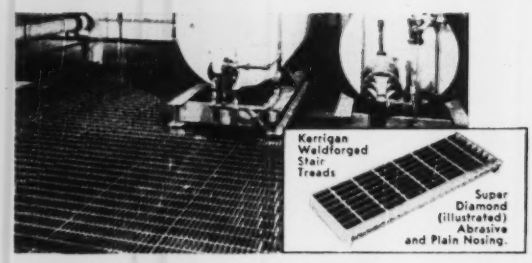

You get an extra margin of safety with Kerrigan Weldforged steel flooring and stair treads. Continuous spiral cross bars, slightly above bearing bars and alternating right and left, leave no slick spots. Cross bars are Weldforged into bearing bars to form a one-piece unit of great strength.

For safety, strength, maximum light and ventilation, easy installation and maintenance, always specify Kerrigan Weldforged grating and stair treads. Its uses are many, indoors and out—open flooring, stair treads, sidewalk doors, catwalks, subway grating . . . to name only a few.

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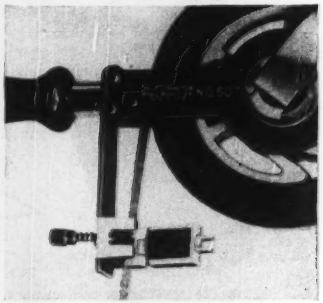
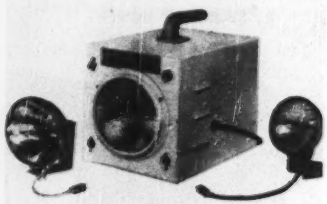
(Continued from page 102)



Wiper for Measuring Tapes

Reel attachment wipes measuring tapes clean of oil, mud, or other dirt as it is reeled in. It can be used as a permanent attachment, or attached only when needed. It mounts on the stud that secures the hand grip to the tape frame. Both sides of the tape ribbon are wiped clean by pads which are held in uniform contact under spring pressure. A bayonet lock permits the upper pad plate to be released and swung aside to facilitate pad replacement or removal of the wiper.—L. S. Starrett Co., Athol, Mass.



Automatic, Emergency Light

Emergi-Lite, designed for plugging into any 110-v ac circuit, lights up as soon as a power failure occurs in the line. It stays lit for 9 hr, or until power is resumed. Battery then automatically recharges. Or, it can be used as a portable light by removing plug extension.—Alliance Electric Forks, Ltd., 141 Bates Road, Montreal 8, Quebec, Canada.

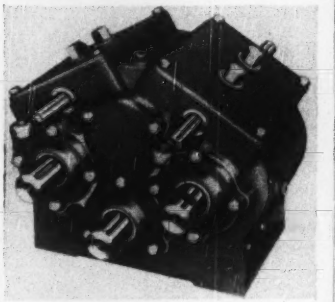
Magnetic Separator

Non-electric magnetic separator removes iron from liquids and slurries flowing in large pipes. The Eriez Pressure Hump is a flow-interrupting unit. This means that strategically placed baffles direct material flow 30 deg from the normal straight line so that two stainless steel plate-type magnets installed on opposite faces of the

hump can set up a magnetic barrier in tandem. Pressures to 45 psi can be handled safely.—ERIEZ MFG. CO., ERIE, PA.

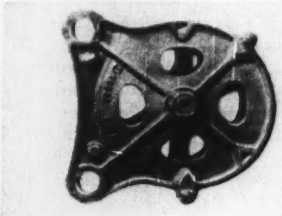
Extra-Length Masonry Drill

Cylo-Twist double-spiral fluted drills are now available in lengths to 36 in. Diameter of these drills range from ⅛ to 1 in. The spiral flutes run from both cutting edges to the shank. Drill body is the same diameter as the carbide tip.—NEW ENGLAND CARBIDE TOOL CO., INC., 60 BROOKLINE ST., CAMBRIDGE 39, MASS.



Power Divider

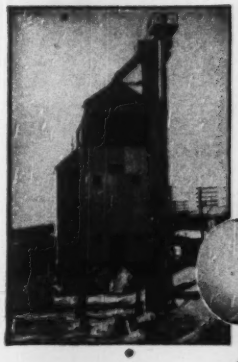
Driven by a power take-off mounted on a truck transmission, the Tulsa power divider has one input shaft and two output shafts. The output shafts are extended on both ends to provide for driving a maximum of four units. Each output shaft has two speeds forward and one reverse for one speed of the input shaft. The output shafts may be run in their various speeds either simultaneously or independently of each other. The Tulsa unit is especially recommended for driving: A double-drum winch; one winch installed back of cab and one at the front of the vehicle; or a winch and pump on one vehicle.—TULSA WINCH, DIV. OF VICKERS, INC., TULSA, OKLA.



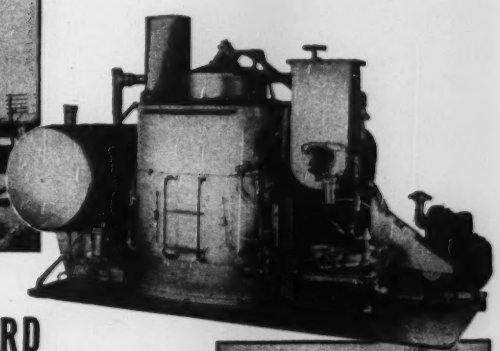
Dragline Dump Block

Free-running block is said to reduce digging-cycle time. The Baer block sheave turns on an oversize roller bearing to give full dumping force to the bucket load when its dragline is slacked off. To prevent fouling or fraying of the fast-moving dump line, the housing throat is faired into the sheave

(*Continued on page 107*)



Heating Aggregate and Water for concrete mixing is a prime use for the "Kwik-Steam" Generators. Uninterrupted winter weather operation is assured with this fast heating unit. In less than 60 minutes hot water and aggregate are available to satisfy peak load operation.



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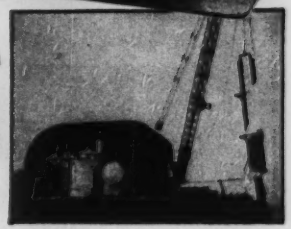
FOR PILE DRIVING
AGGREGATE HEATING
ASPHALT PLANTS



Pile Driving Contractors have found the "Kwik-Steam" Generators the last word in efficiency and economy. "Kwik-Steam" Generators cuts labor cost and speeds up operations. From a cold start, the hammer can be working in a few minutes. Steam is only produced when it is needed. "Kwik-Steam" Generators can be furnished with a steam chest if desired.

These "Kwik-Steam" Vapor Generators are the most modern steam producing units ever offered to the Construction Industry. **From a cold start the Littleford "Kwik-Steam" Generators will produce steam in two minutes time.** Designed for low cost operation and fast heating, these units will save Ready Mixed Concrete Plants, Asphalt Plants, Pile Driving Contractors as much as 50% on labor and fuel. Automatically controlled, the "Kwik-Steam" Generators will operate only when steam is needed; the Burner cycles off when steam is not needed. Once the "Kwik Steam" Generators are started, automatic controls take over and keep a predetermined pressure at all times. Safety in operation is achieved by fool proof controls. Since the "Kwik-Steam" Generators burn low cost fuel oil no hard fuels are required as in the case of hand fired boilers. Other uses for the "Kwik-Steam" Generators are Steaming Aggregate Cars, Water Heating, Operating Steam Hoists, Cleaning Equipment, Heating Asphalt Tank Cars along side Asphalt Plants and Curing Concrete Blocks. "Kwik Steam" Generators are made in sizes from 500 lbs. to 4000 lbs. of steam per hour.

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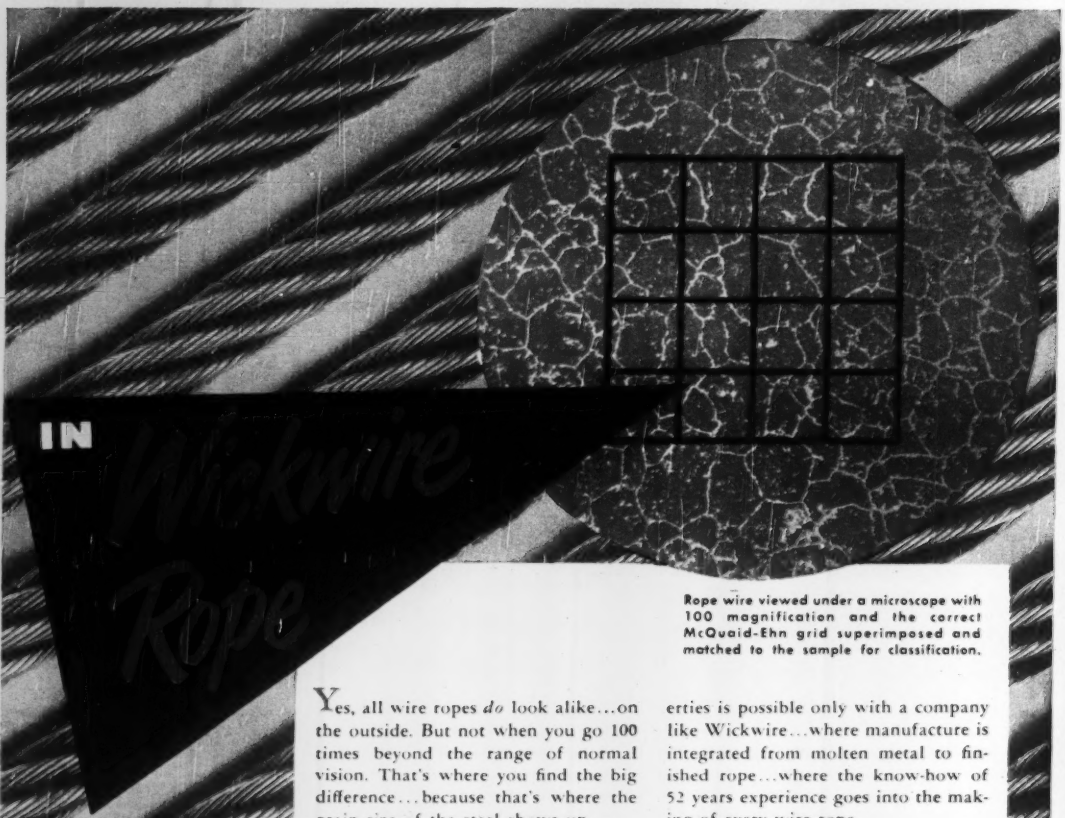

Rope wire viewed under a microscope with 100 magnification and the correct McQuaid-Ehn grid superimposed and matched to the sample for classification.

Yes, all wire ropes *do* look alike...on the outside. But not when you go 100 times beyond the range of normal vision. That's where you find the big difference...because that's where the grain size of the steel shows up.

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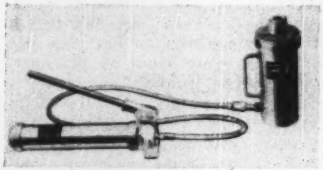
ropeway. Rope is confined and cradled to assure positive seating at any rope tension. Oversize, firmly locked retainers seal the Zerke-lubricated bearing to permit continuous use of block in underwater digging if necessary.—Baer Steel Products, Inc., Auburn, Wash.



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Remote control hydraulic rams and pumps are designed for use where limited space or difficulties make the use of self-contained jacks impossible. Re-Mo-Trol units enable the operator to lift, pull, or push from a distance and in any direction. Unique feature is a center hole tubular ram used on units of 30 tons or greater capacity. A rod or bolt inserted through the ram and secured over the ram head can be pulled through the ram as it extends. The center hole construction is also said to simplify rigging requirements on many jobs. Re-Mo-Trol rams will be available in seven models, including a telescoping ram, ranging from 10 to 100-ton capacities.—Templetiok, Kenly & Co., 1002 S. Central Ave., Chicago 44, Ill.

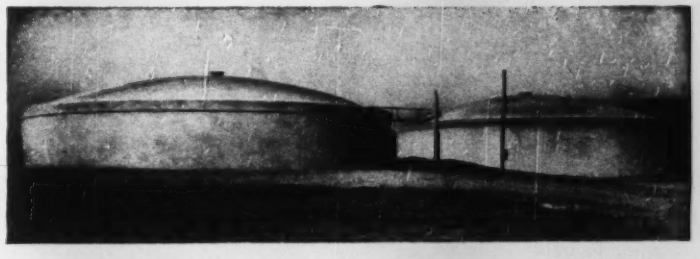
New Product Briefs

Dust collector, available as a packaged unit, has a 10,050-cfm capacity. Maker: Aget-Detroit Co., Ann Arbor, Mich.

Gasoline and oil-resistant wire (Geotrol) is insulated with vinyl compound and sheathed in a jacket that is highly resistant to petroleum products. General Electric is producing its Geotrol in sizes 14, 12, and 10 Awg.

Air-distribution outlets are designed for installation where they cannot be recessed into the ceiling. Venturi-Flo Models JS and JSC extend only a few inches from the ceiling surface. Maker: Barber-Colman Co., Rockford, Ill.

Magna-Flo fluorescent-lighting units for T-12 Slimline lamps are available for 96, 72, and 48-in. lamps with two or three-lamp lampholders, and for mounting as continuous line-lighting or individual units. Maker: Benjamin Electric Mfg. Co., Des Plaines, Ill.



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Above are shown two 80' diameter 750,000 gallon pre-stressed "GUNITE" water storage tanks with "GUNITE" dome roofs. We built these tanks in 1943 for the Borough of Schuylkill Haven, Penna.

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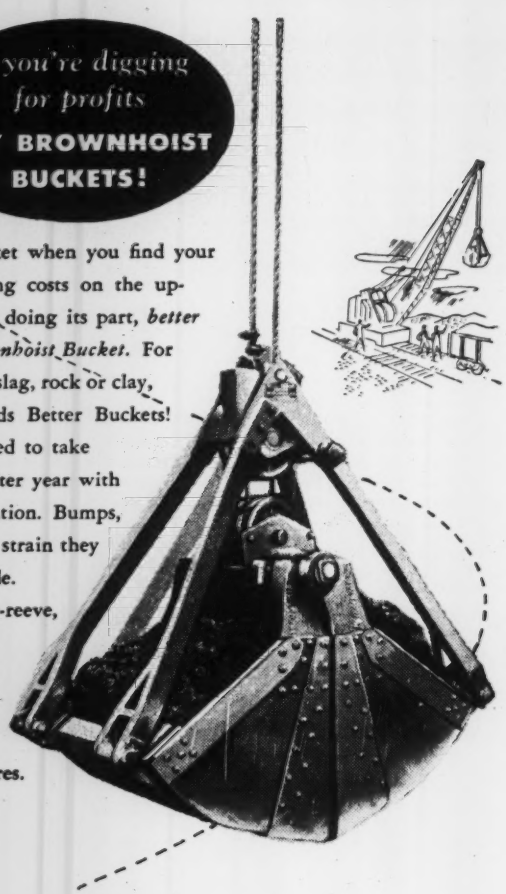

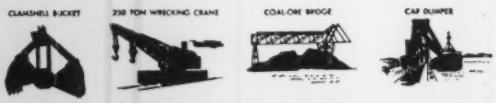

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Manufacturers' Publications

Timber Construction—Booklet describes timber construction for military, commercial, and industrial buildings. It presents advanced uses to which the Teco connector system of timber construction has been put to use in many types of buildings. This system employs wedge-fitted split-ring connectors and Trip-L-Grip framing anchors. The booklet also discusses glued-laminated timber construction and decorative lamella construction. A series of drawings depicts practical applications of the Teco system.—TIMBER ENGINEERING CO., 1319 EIGHTEENTH ST., N. W., WASHINGTON 6, D. C.

Light-Duty Crane—Safety features of the KL-22 Jones 2½-ton wagon crane are stressed in this 4-p folder. The bulletin contains a complete description of the cantilever boom that eliminates boom-hoist cables. The bulletin contains complete specifications for the crane.—TRACTOR & EQUIPMENT CO., 10000 S. RIDGELAND AVE., OAK LAWN, ILL.

Water-Repellant Coating—Full descriptive details are available on Hydropel, a transparent water-repellant coating for exterior masonry surfaces. These details describe the product, list its qualities, contain a series of recommended uses, and contain information on how to handle and apply it.—UNITED LABORATORIES, INC., 16801 EUCLID AVE., CLEVELAND 12, OHIO.

Protective Coatings—Data sheet contains information on the DEL Series D coatings. It explains the features of these coatings, lists recommended uses, and describes the various colors and types in which it is available.—DAVID E. LONG CORP., 220 E. 42ND ST., NEW YORK 17, N. Y.

Electric Fork-Lift Truck—Bulletin describes the straddle-type SpaceMaker electric fork-lift truck for handling double-face pallets. Illustrations show the SpaceMaker with telescopic frame raised to its full height and the non-telescopic model with forks in a low position. Line drawings show all dimensions. Full specifications are listed. —LYON-RAYMOND CORP., 76145 MADISON ST., GREENE, N. Y.

Electric Cable Production—Facilities and history of the Rome Cable Corp. are described in this 40-p stiff-bound

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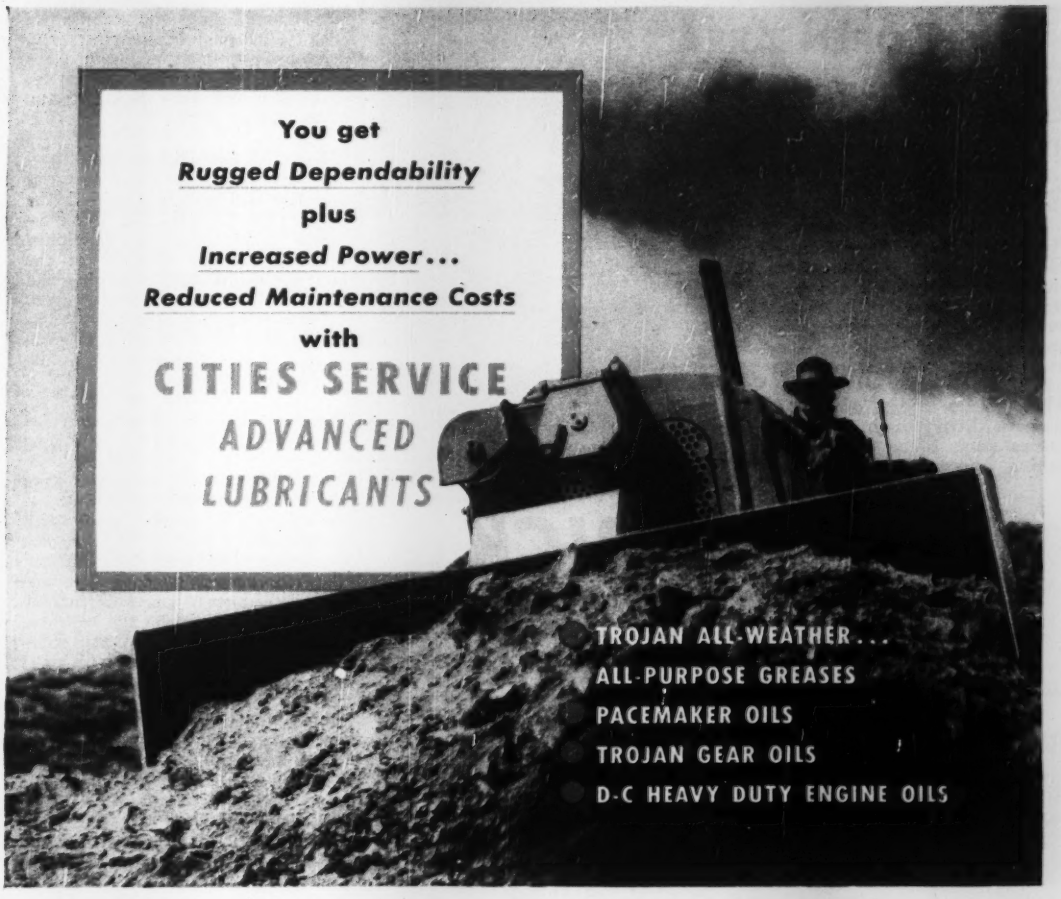

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catalog. The booklet portrays the information by words and pictures. It contains a listing of important Rome developments, dates of major plant additions, and describes the various products turned out.—ROME CABLE CORP., ROME, N. Y.

Electric Motors—Pre-lubricated bearings said to provide many hours of operation without relubrication is the subject of Bulletin B-2201. This illustrated folder contains descriptive sketches, cutaway drawings of the improved double-shielded bearings and their bracket mounting, and a check list for comparing bearing arrangements.—RELIANCE ELECTRIC & ENGINEERING CO., 1088 IVANHOE ROAD, CLEVELAND 10, OHIO.

Portable Gravel Plant—Universal Model 293QS TwinDual Gravel King is described in this new bulletin. Bulletin U501 describes the Gravel King as a complete portable gravel crushing, screening, and loading plant with three stages of crushing, two screening operations. Diagrams in the bulletin illustrate various product combinations available. A large-scale cutaway flow diagram illustrates the construction and operation of the Gravel King.—UNIVERSAL ENGINEERING CORP., DIV. PETTIBONE MULLIKEN CORP., 633 C AVE., N. W. CEDAR RAPIDS, IOWA.

Pipe-Line Pumping Units—Eight-page booklet describes various pipeline power packages. It tells the story behind the assembly of centrifugal pumping units for stationary or portable service. Examples in Form 30047 are accompanied by illustrations showing how the units are prepared to meet each pipeliner's own particular needs.—CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

Safety Equipment—Annual catalog lists complete and diversified selection of safety equipment and devices. Each item is illustrated, accompanied by text describing principal features and advantages claimed for each unit. Requests for the catalog should be made on company letterhead.—PARKER SAFETY EQUIPMENT CO., A-785 LYONS AVE., IRVINGTON 11, N. J.

Lubricated Plug Valves—Use of this type of valve in sewage-disposal plants for handling raw sewage, sludge, by-product gas, air, and hot and cold water is discussed in two bulletins. One bulletin lists representative sewage-treatment plants in which ACF valves are installed; lists features claimed for the valves; and contains typical specifications covering these valves. The other bulletin is a reprint

of an article by E. A. Locke, assistant engineer in charge of the metropolitan district sewage treatment plant at Hartford, Conn. In this article, Mr. Locke compares lubricated plug valves to gate valves when used in sewage plants.—AMERICAN CAR & FOUNDRY CO., 30 CHURCH ST., NEW YORK 8, N. Y.

Orange-Peel Buckets—Line of buckets in 1½ and 1¾-ft. sizes are described on this data sheet. The sheet contains complete information on these buckets which have 15 and 18-in. dia. Construction details and features are described, and specifications are listed for over-all height, over-all width, and weight.—N. P. NELSON IRON WORKS, INC., 820 BLOOMFIELD AVE., CLIFTON, N. J.

Wheel Tractors—Model 88 45-hp tractor is the subject of 4-p folder A-915A. The folder features a cutaway drawing of the tractor in which more than 32 principal components and construction features are pointed out and described. A table of specifications covers the engine, chassis, regular equipment, and extra equipment.—THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO.

Fans and Blowers—Complete line of fans and blowers are described in Catalog 5001. This booklet features a complete story of the construction and operation of these fans. Also featured is a series of photographs showing typical installations.—THE MOORE CO., 800 S. MISSOURI, MARCELINE, MO.

Hydraulic Valves—Ninety different models of hydraulic valves are illustrated and described in Catalog Section 202. This 52-p booklet covers nearly every type of 4-way hydraulic valve. Descriptions of each model include working drawings, specifications cut-away views, and operational diagrams of piston designs. Circuit layouts for important types of control show arrangement of all necessary hydraulic equipment.—RIVETT LATHE & GRINDER, INC., BRIGHTON 35, BOSTON, MASS.

Bin-Level Indicators—New Bin-Dicator literature describes these bin-level indicators and the Bin-Flo acrating device for providing uniform and steady flow of bulk materials. The literature features cross-sectional views showing construction of the Bin-Dicators, and text matter explaining methods of operation and recommended applications.—THE BIN-DICATOR CO., 13946 KERCHEVAL, DETROIT 15, MICH.

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Taft and future labor laws

Joseph Gambatese
(McGraw-Hill Washington Bureau)

The Taft-Hartley labor law will remain intact during the 82nd Congress. More than that, the recent elections have probably eliminated repeal of the law as an issue even in 1952. As long as business continues at a high level with full employment, organized labor will have difficulty again convincing the voters that the 1947 labor act is a "slave" law.

Sen. Robert A. Taft of Ohio, who scored a smashing re-election victory over the combined forces of Democrats and labor organizations, is convinced that the law he co-authored and defended in the campaign is on the books to stay. The Republican senator does not plan to push for consideration of the 28 amendments to Taft-Hartley passed by the Senate in 1949.

Taft did not support all of the amendments passed. Some were the result of compromise. Taft would have favored one change in Taft-Hartley if Robert N. Denham had remained as General Counsel of the National Labor Relations Board. That is his substitute proposal to President Truman's Reorganization Plan 12.

Taft offered a substitute bill which would clarify the division of authority between the General Counsel and the five NLRB board members. It would give the General Counsel complete control over staff and field operations. The board members would have their own staff to handle enforcement and appeals.

But with NLRB and the new General Counsel, George J. Bott, having come to an agreement settling points of difference the board had with Denham, Taft will forget about this change in NLRB procedures.

• **Taft's defense**—Taft made a special point of defending the Taft-Hartley law in his Ohio campaign. In addition to the senator's own speeches, his labor adviser, Thomas E. Shroyer, minority counsel to the Senate Labor Committee, traveled over the state for six weeks addressing meetings of workers arranged by the Labor League for Taft.

Shroyer had helped draft the law three years ago. Since then, he has represented Taft on the committee staff and been in the middle of the various attempts to repeal or amend the law. At the workers' meetings, Shroyer answered, point by point, every attack made against the Taft-Hartley law and Taft's labor record in the "Fact Book" the labor organizations had distributed attacking the senator.

New chairman of the Senate Labor Committee will be Sen. James E. Murray of Montana, who succeeds the defeated Sen. Elbert D. Thomas. Thomas was defeated in Utah by Wallace F. Bennett, former president of the National Assn. of Manufacturers.

Murray is considered more aggressive and more liberal than Thomas was on labor legislation. Labor unions were disappointed early in 1949 in the way Thomas, a former college professor, fumbled the handling of Taft-Hartley repeal.

Murray has been chairman of the subcommittee on labor-management, which has been investigating the condition of labor relations under current law.

• **No Pepper**—The Senate Labor Committee may be weakened, from a labor standpoint, by the loss of Sen. Claude Pepper of Florida, in addition to Thomas, and the likelihood that the Republicans will get an additional member. One of the Republicans, Sen. Forrest C. Donnell of Missouri, labor's No. 2 target in the election, also lost.

The new Labor Committee probably will be 7-6 Democratic, instead of 8 to 5. But the Republicans can't count on holding the vote of Sen. Wayne L. Morse of Oregon or, sometimes, Sen. George D. Aiken of Vermont.

Labor lost ground in the House Education and Labor Committee even before the elections, when Chairman John Lesinski of Dearborn, Mich., died. He was succeeded by a Southern Democrat, Graham A. Barden of North Carolina, who is opposed to President Truman's "Fair Deal." Lesinski's son, John, Jr., has been elected to his late father's seat in Congress and hopes to serve on the Labor Committee.

Only three members of the House Committee were defeated. All were Democrats and considered "friends" by the labor organizations. They are Rep. Thomas H. Burke of Toledo, O., a CIO leader; Rep. Andrew Jacobs of Indianapolis, a labor attorney, and Rep. Hugo S. Sims of Orangeburg, S. C.

Jacobs during his one term in Congress headed a committee to investigate non-democratic procedures in internal union practices. Last May he tried to get John L. Lewis subpoenaed to testify concerning charges of a member of the United Mine Workers that Lewis gave a secret signal to strike the coal mines in defiance of an injunction.

• **Walsh-Healey review**—Labor legislation which might possibly be considered is a proposal that the Walsh-Healey Public Contracts Act be repealed or amended so as to limit the Secretary of Labor Tobin in the setting of minimum wages for work on government contracts. Labor and the Administration would oppose this strongly.

This law was passed in 1936 to put a floor under wages on government work when it was believed that the minimum wage law would not be passed or would be unconstitutional. The wage-hour law came two years later, and now provides for a minimum of 75 cents an hour.

But under Walsh-Healey, Tobin has set rates as high as $1.23 in steel and has under consideration $1.40 for a part of the chemical industry. With more and more work under government contract, the rates set by Tobin under Walsh-Healey become a more important factor in wage costs than the wage-hour law.

The Senate Labor-Management Committee expires at the end of the year. Whether it will be revived by the next Congress is debatable.

The committee held hearings on hiring halls and issued a report to legalize them. It has held hearings on labor organizing difficulties in southern textile mills, on bargaining in the telephone industry and on labor practices of some Atlantic Coast oil tanker firms. Reports will be issued, but no action will be taken on them.

The committee's staff has been doing some work on what is happening on labor injunctions, the need for another National War Labor Board in the war emergency and on the causes of the running feud between Denham and the labor board. It will report its findings in a memorandum to the committee.

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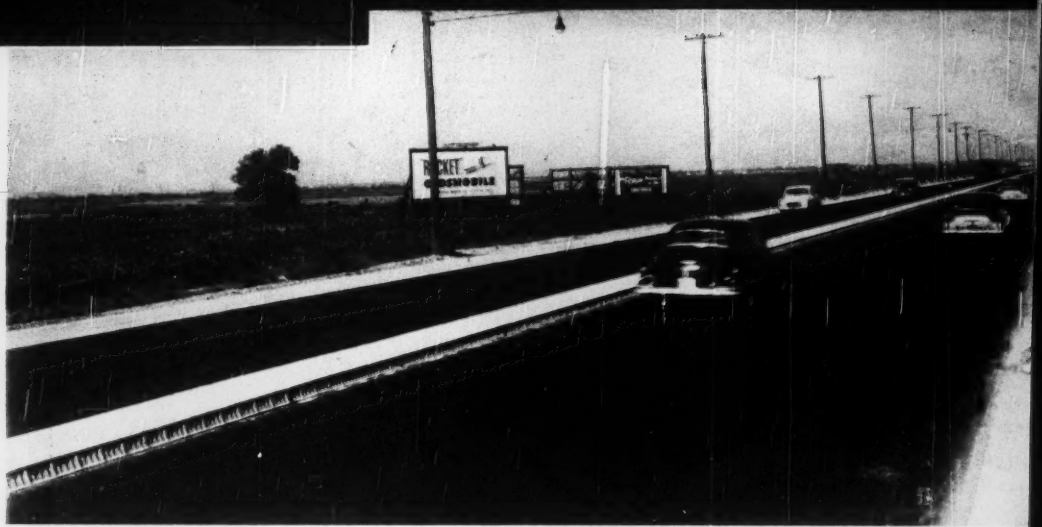

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